HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

SANDRIDGE ENERGY | BIRD 3319 | BIRD | COMANCHE | KANSAS

COMPANY / WELL / FIELD/BLOCK / COUNTY / STATE

COMPANY **SANDRIDGE ENERGY**

WELL **BIRD 3319**

FIELD/BLOCK **BIRD**

COUNTY **COMANCHE** STATE **KANSAS**

API No. 15-033-21748-00-00

Location (SHL) 830' FNL & 330' FEL
N2-SE-NE-NE

Sect. 6 Twp. 33S Rge. 19W

Other Services:
MICROLOG
ACRT
CSNG
WAVESONIC
MRIL
IDT
ICT

Permanent Datum	GL	Elev. 1875.0 ft	Elev.: K.B. 1887.5 ft
Log measured from	KB	, 12.5 ft above perm. Datum	D.F. 1886.5 ft
Drilling measured from	KB		G.L. 1875.0 ft

Date		27-Feb-14					
Run No.		ONE					
Depth - Driller		6150.00 ft					
Depth - Logger		6150.0 ft					
Bottom - Logged Interval		6067.0 ft					
Top - Logged Interval		789.0 ft					
Casing - Driller		8.625 in @ 786.0 ft		@		@	
Casing - Logger		789.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		WATER BASED MUD					
Density	Viscosity	9.3 ppg	50.00 s/qt				
PH	Fluid Loss	10.50 pH	4.8 cptm				
Source of Sample		MUD PIT					
Rm @ Meas. Temperature		0.250 ohmm @ 75.00 degF		@		@	
Rmf @ Meas. Temperature		0.22 ohmm @ 75.00 degF		@		@	
Rmc @ Meas. Temperature		0.310 ohmm @ 75.00 degF		@		@	
Source Rmf	Rmc	MEASURED	MEASURED				
Rm @ BHT		0.26 ohmm @ 136.0 degF		@		@	
Time Since Circulation		7.0 hr					
Time on Bottom		27-Feb-14 10:39					
Max. Rec. Temperature		136.0 degF @ 6150.0 ft		@		@	
Equipment	Location	11072142	LIBERAL				
Recorded By		J. BOLLOM					
Witnessed By		D. LANGLEY					

Fold here

Service Ticket No.: 901132822 API Serial No.: 15-033-21748-00-00 PGM Version: WL INSITE R3.8.4 (Build 5)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

Date	Sample No.				
Depth-Driller					
Type Fluid in Hole					
Density	Viscosity				
Ph	Fluid Loss				
Source of Sample					
Rm @ Meas. Temp		@	@	@	@
Rmf @ Meas. Temp.		@	@	@	@
Rmc @ Meas. Temp.		@	@	@	@
Source Rmf	Rmc				
Rm @ BHT		@	@	@	@
Rmf @ BHT		@	@	@	@
Rmc @ BHT		@	@	@	@

RESISTIVITY SCALE CHANGES

	Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
	@				
	@				
	@				
	@				
	@				
	@				

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	11048627	Serial No.		Serial No.	10844781	Serial No.	11019643
Model No.	GTET	Model No.		Model No.	SDLT-I	Model No.	DSNT-I
Diameter	3.625"	No. of Cent.		Diameter	4.5"	Diameter	3.625"
Detector Model No.	T-102	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	CS137	Source Type	AM241BE
Length	8'	LSA [Y/N]		Serial No.	5168GW	Serial No.	DSN-424
Distance to Source	18'	FWDA [Y/N]		Strength		Strength	

LOGGING DATA

GENERAL			GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	6150	789	REC	0	150				30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation @	KOP @

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH CASING

CHLORIDES REPORTED AT 7,000 MG/L

GTET-CSNG-DSNT-SDLT-IDT-ICT-WAVESONIC-ACRT RUN IN COMBINATION

REPEAT SECTION NOT PERFORMED DUE TO HOLE PROBLEMS, AS PER CUSTOMER REQUEST

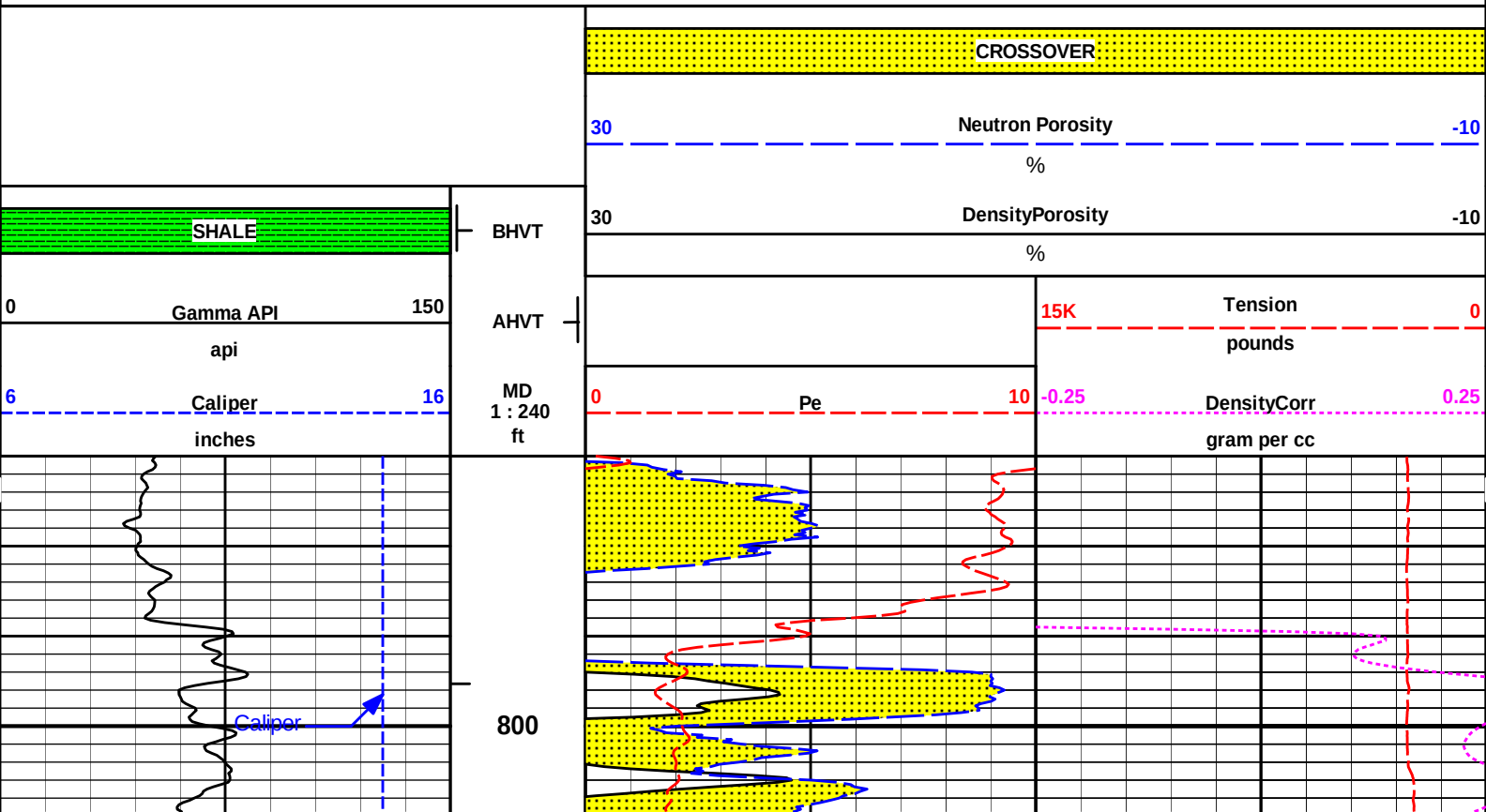
TODAY'S CREW: F. VILLA & M .GRAHAM

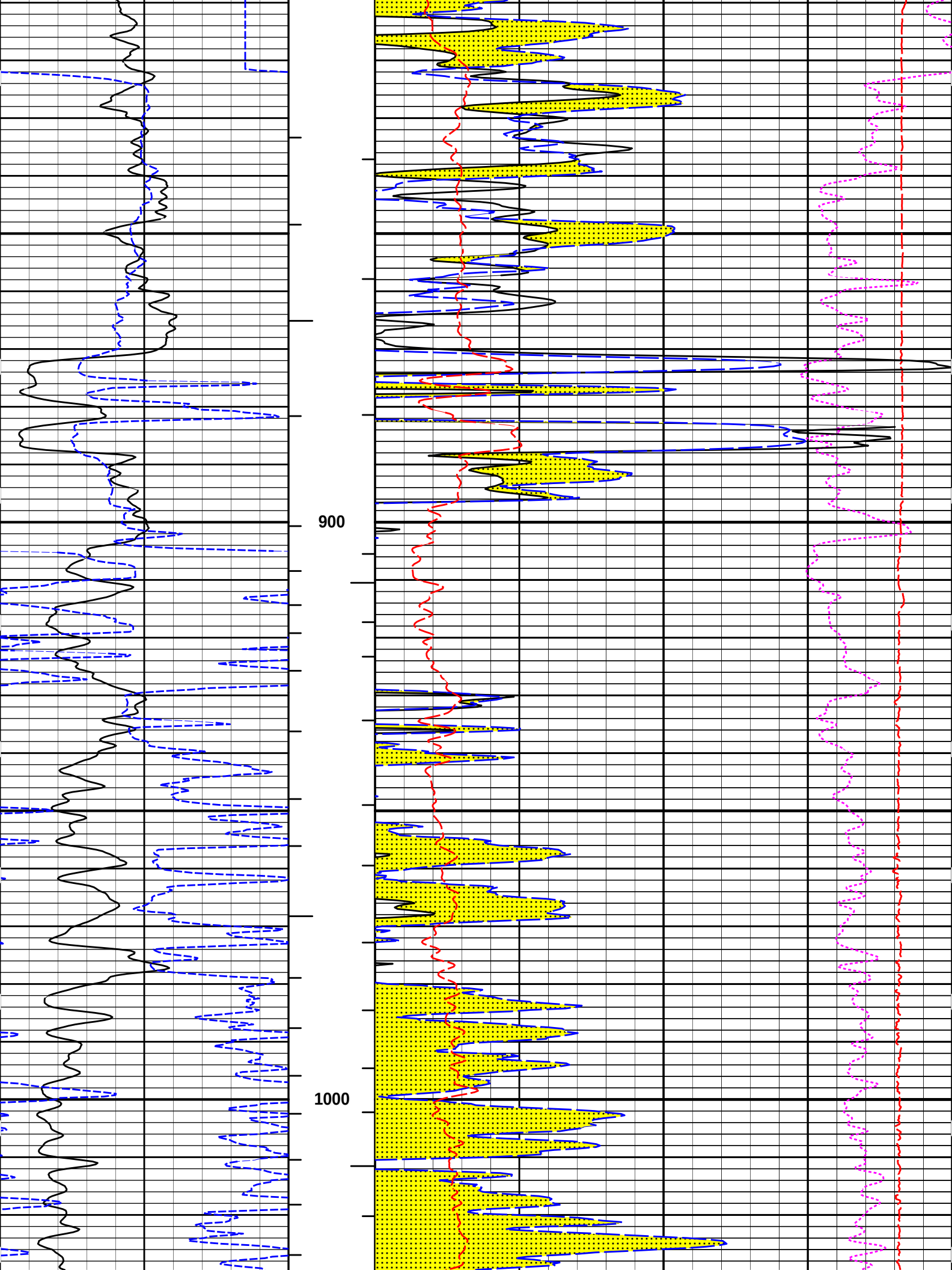
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KS. 620-624-8123

HALLIBURTON

Plot Time: 27-Feb-14 15:23:03
Plot Range: 770 ft to 6158.83 ft
Data: BIRD_3319_3-6\Well Based\CASING
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG

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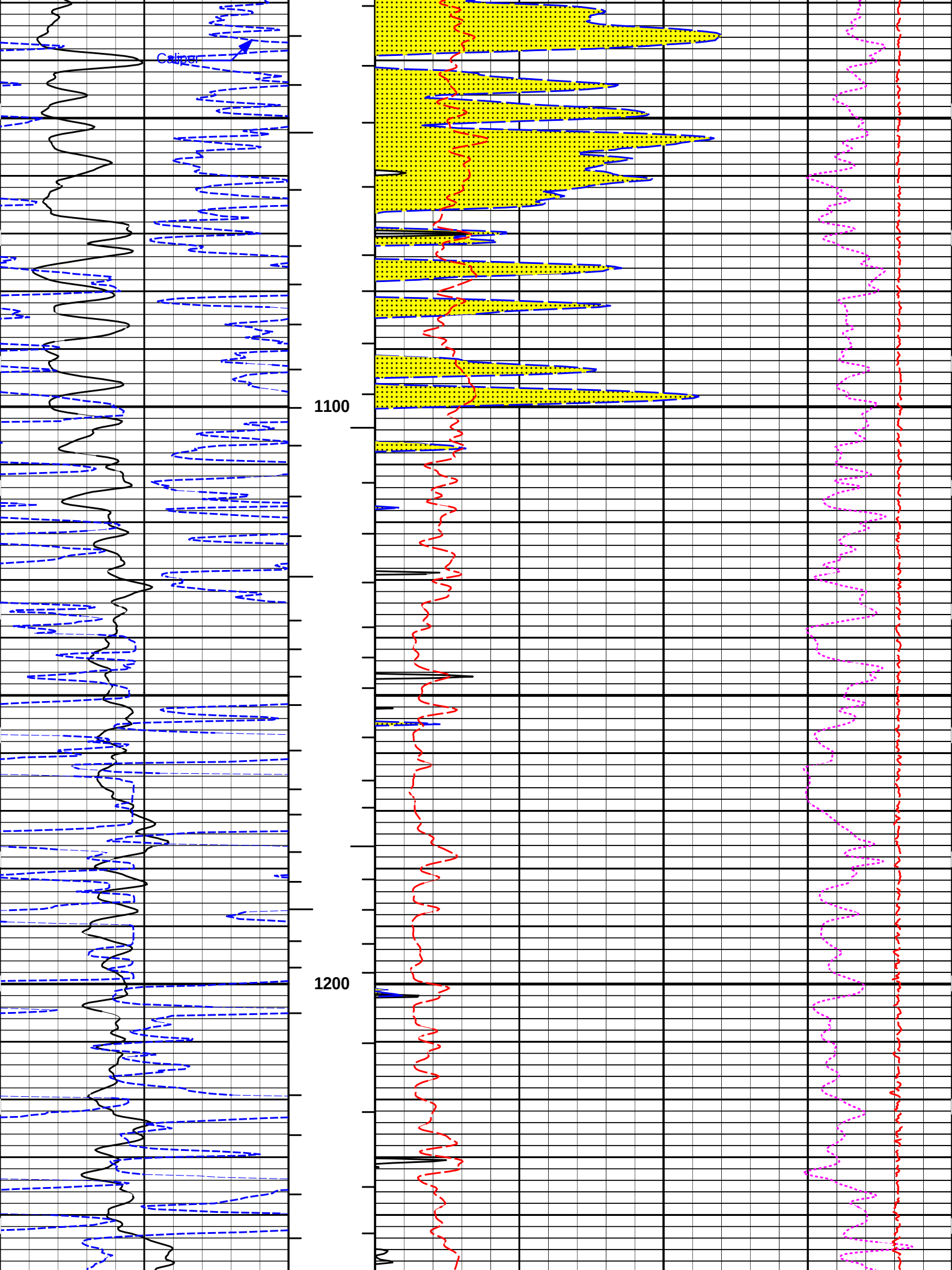
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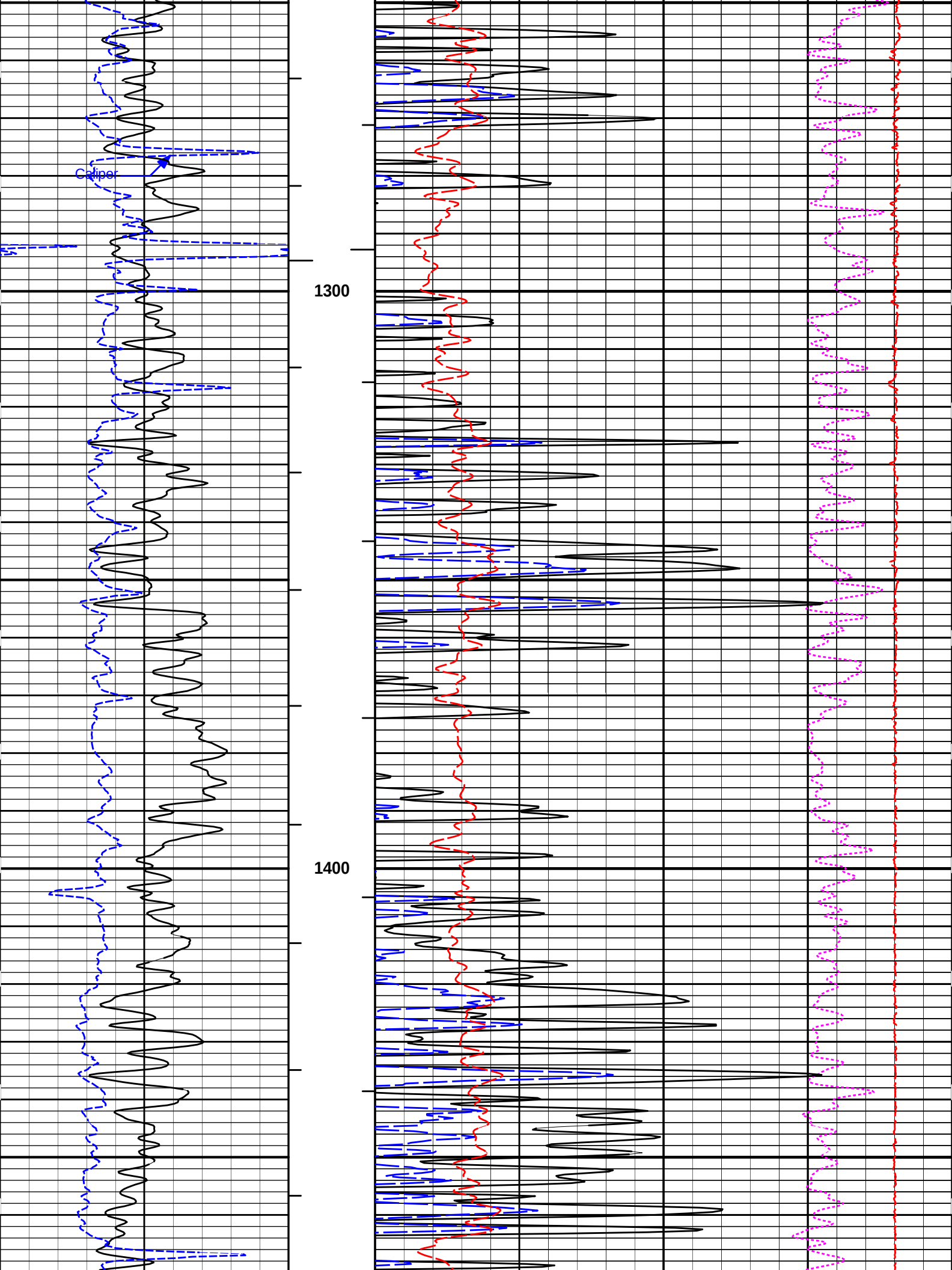
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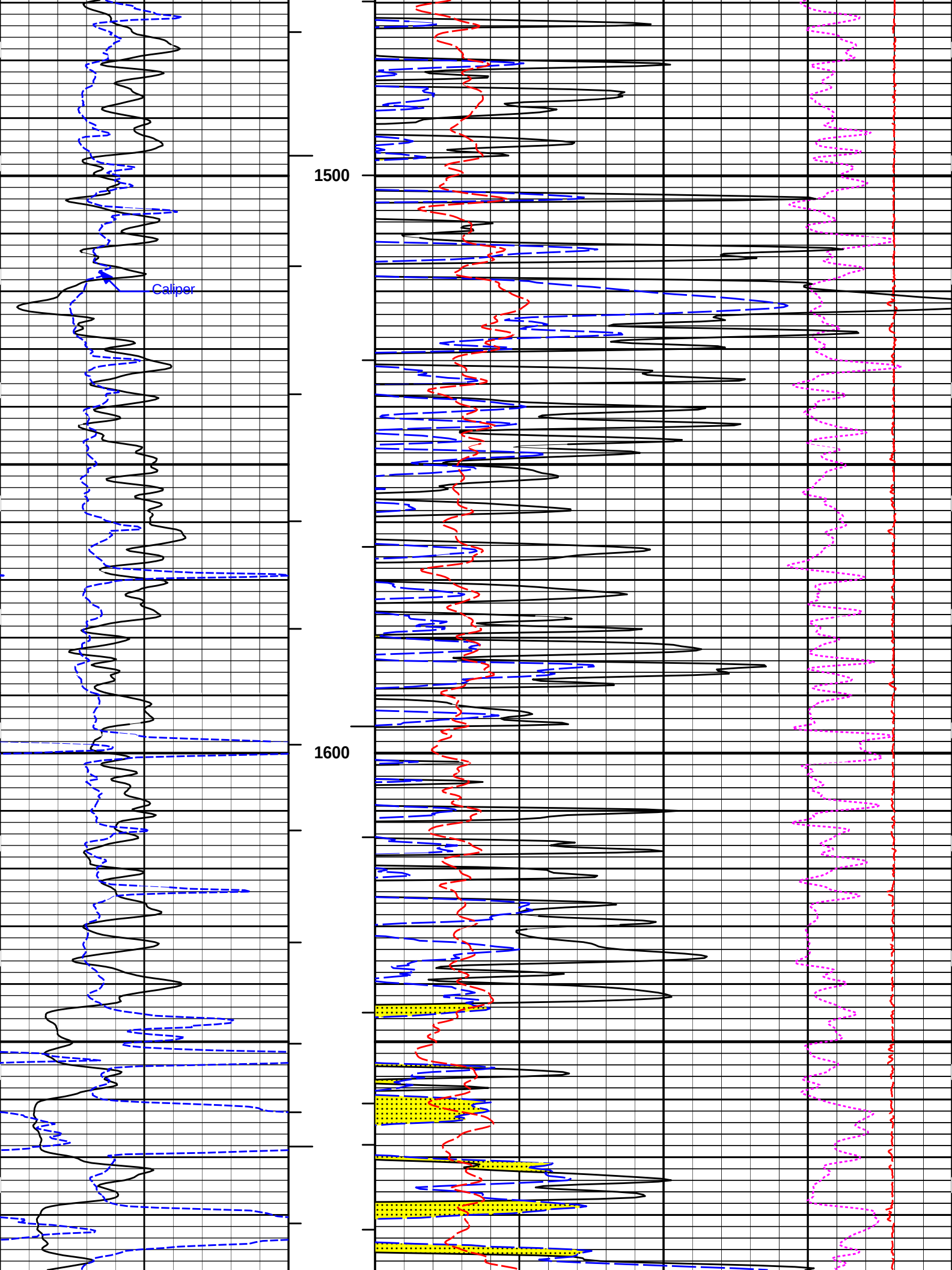
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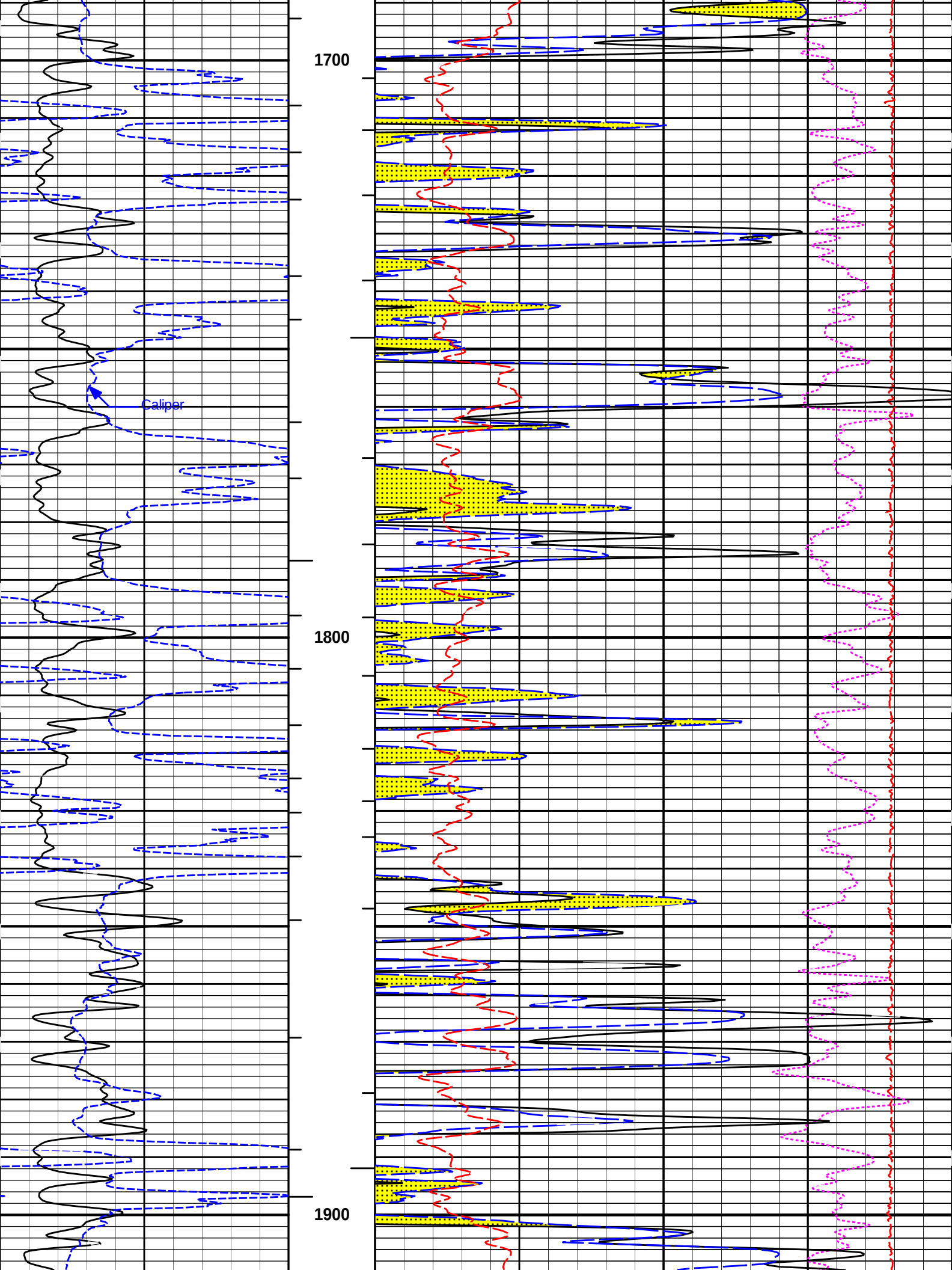
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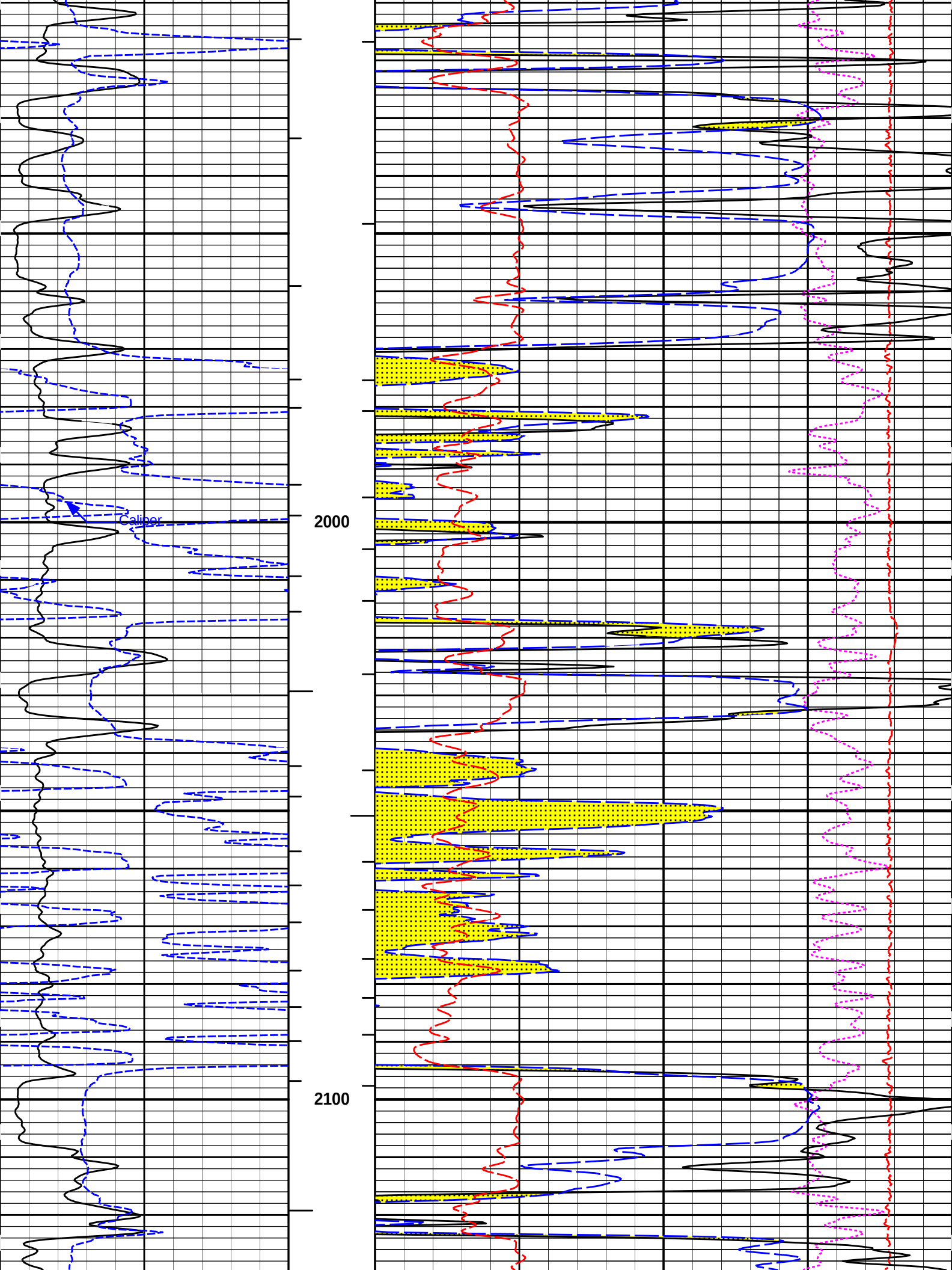
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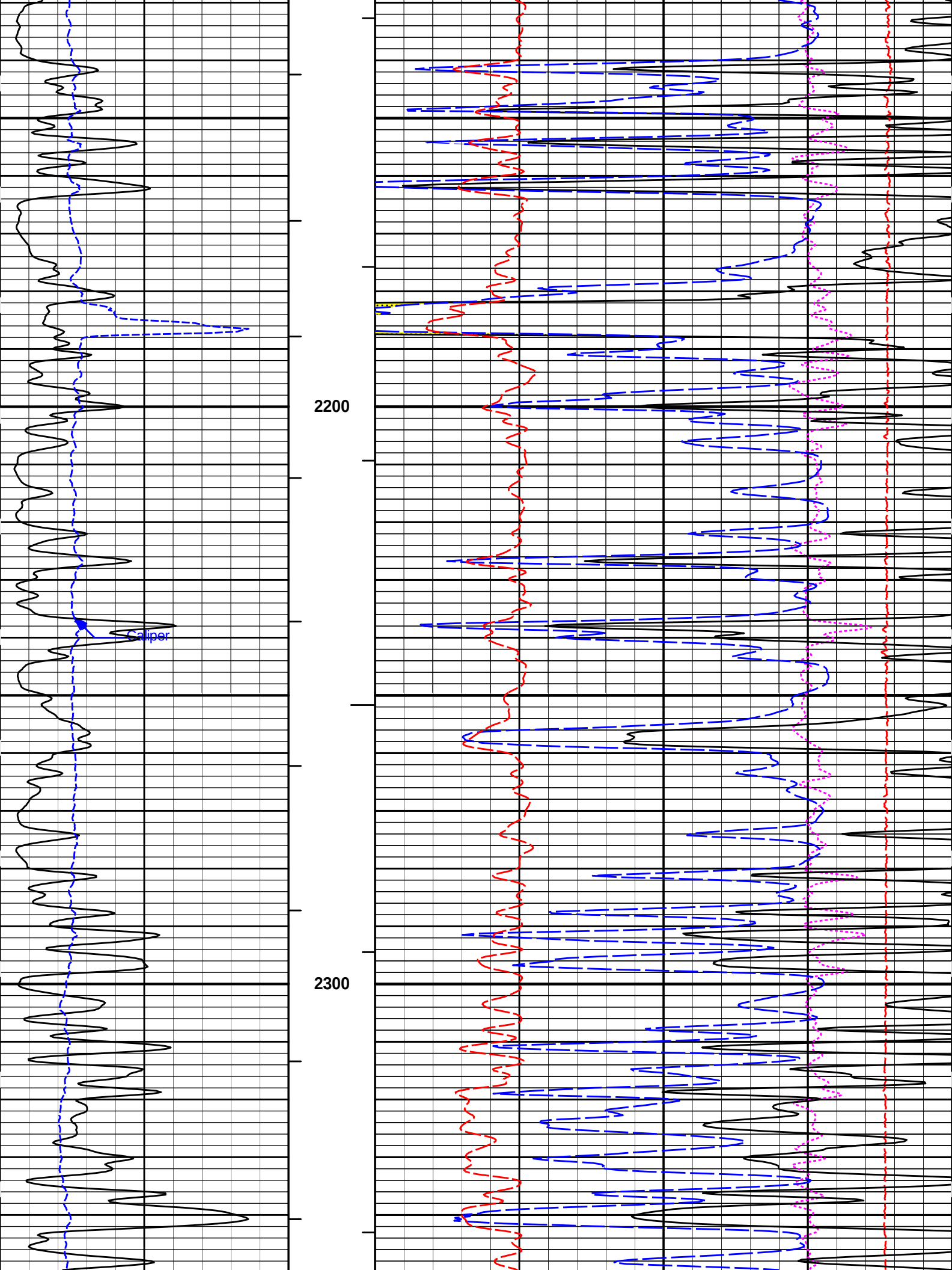
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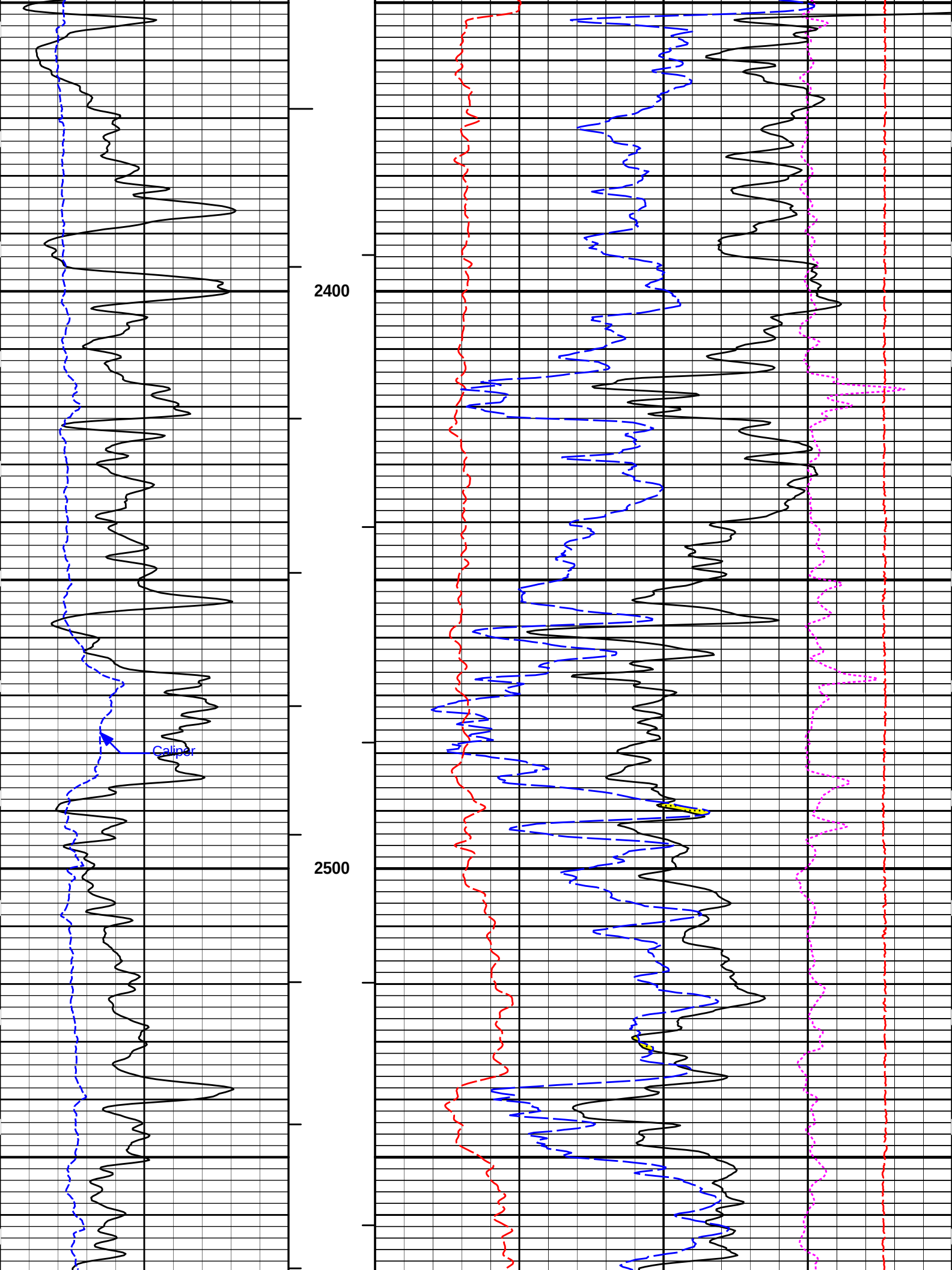
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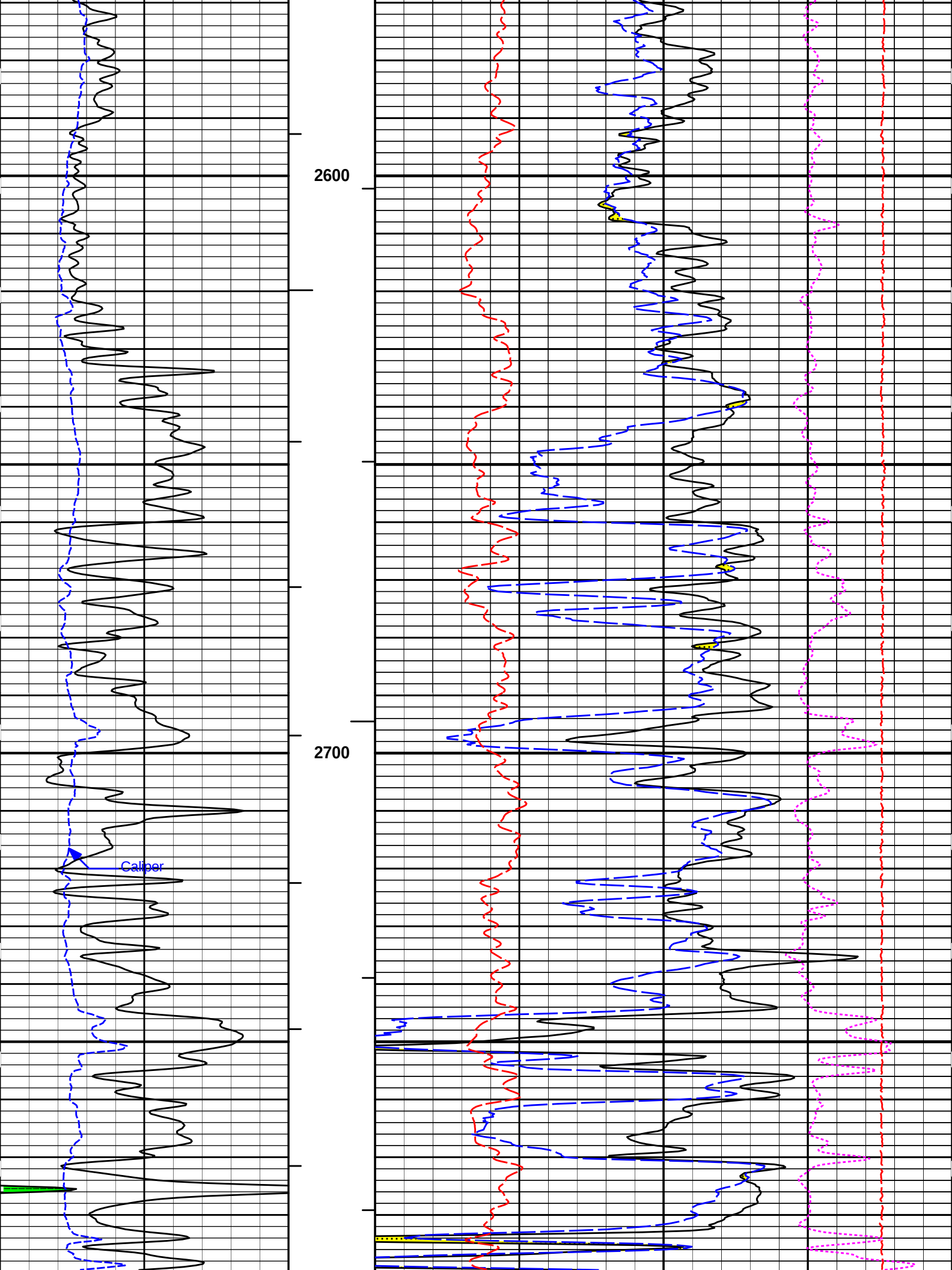
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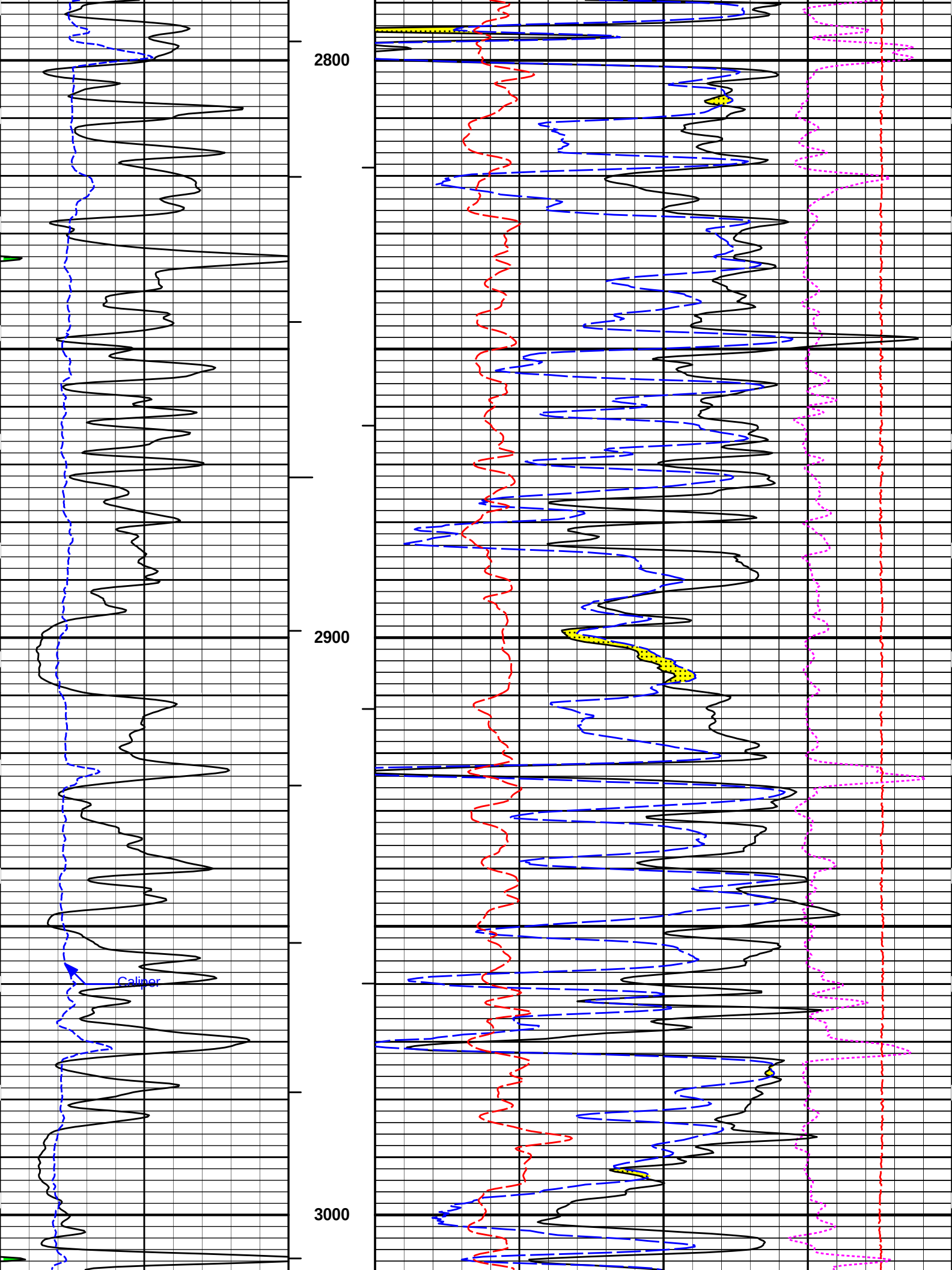
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2900
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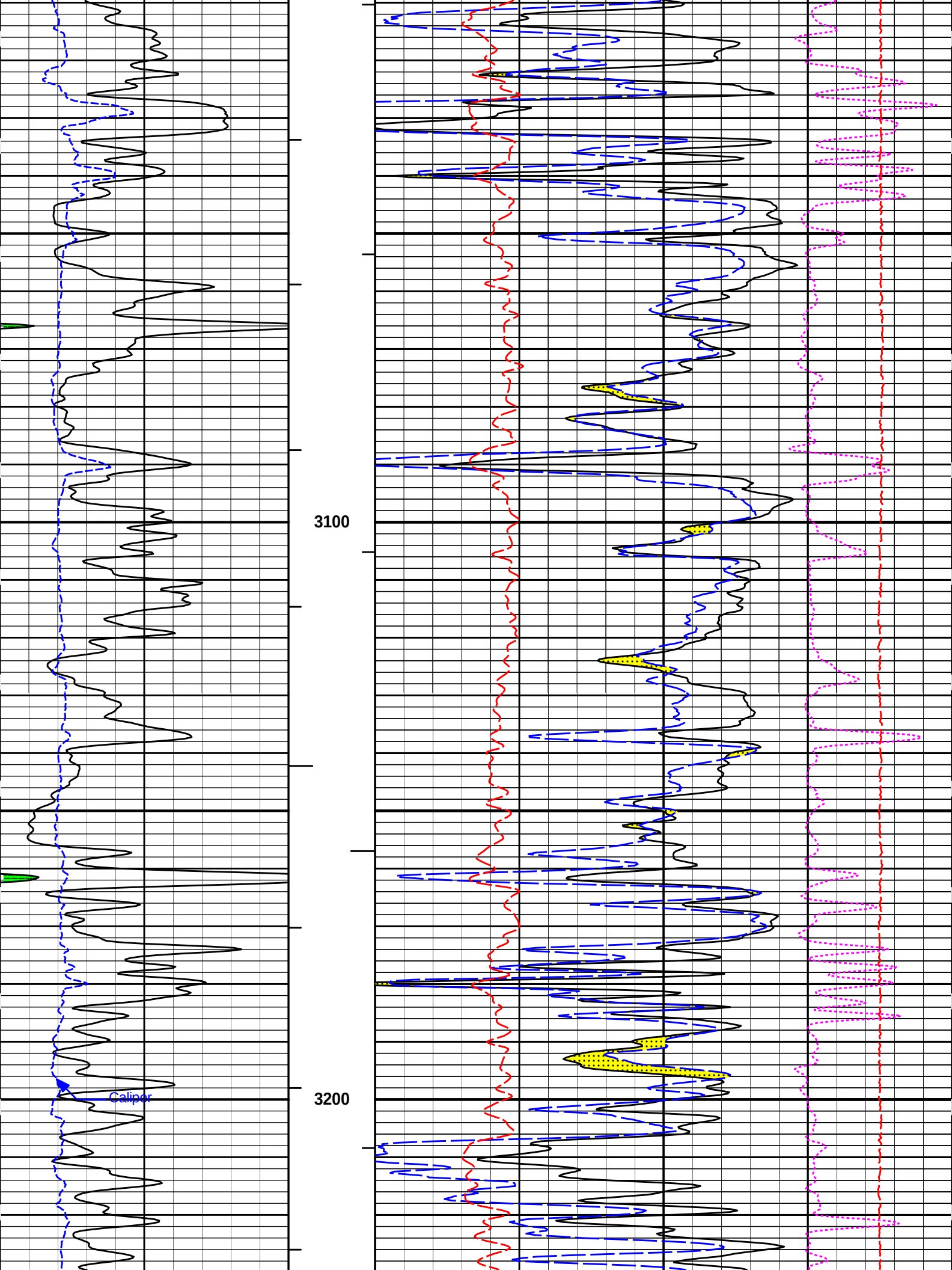
Caliper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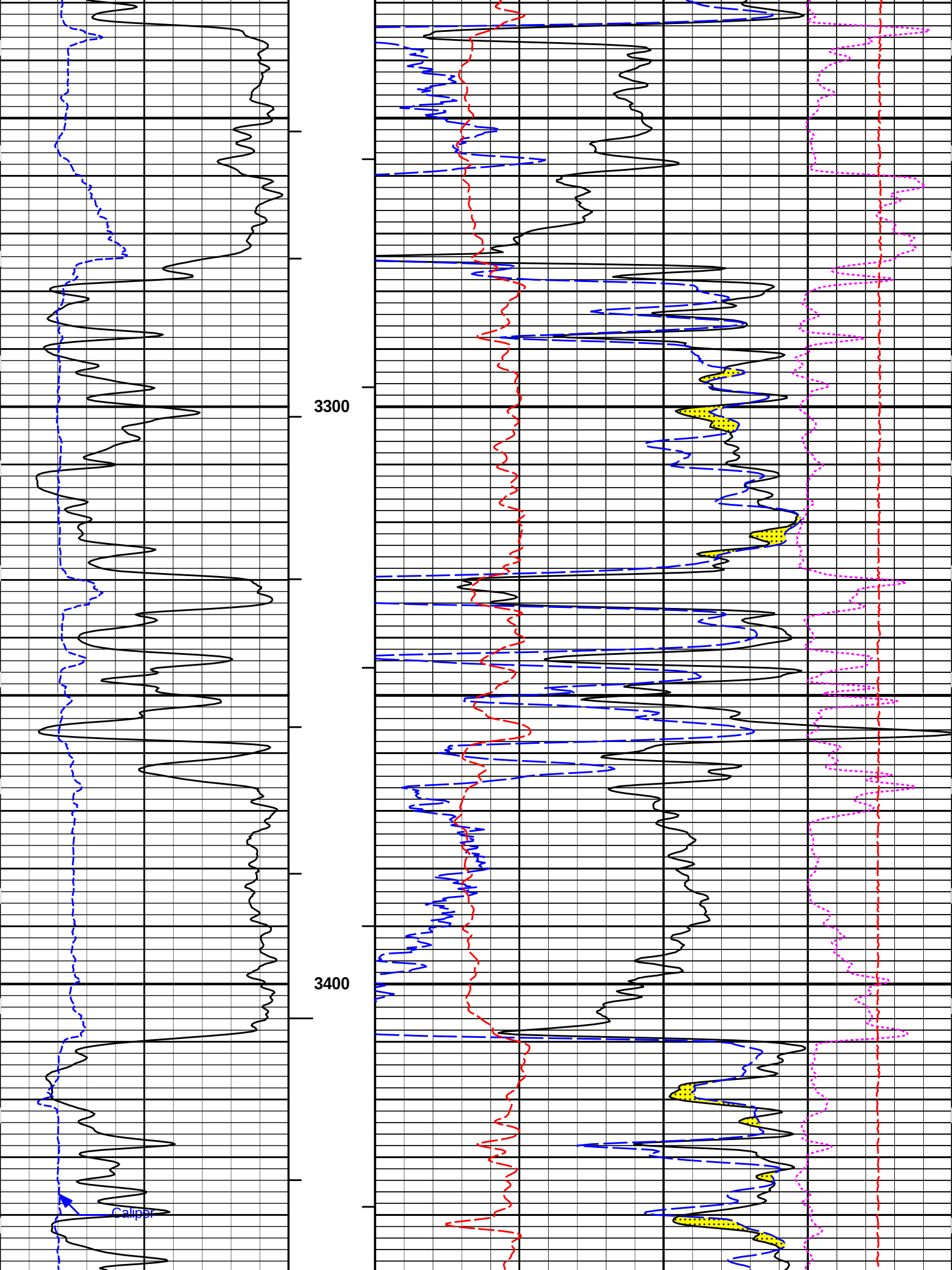
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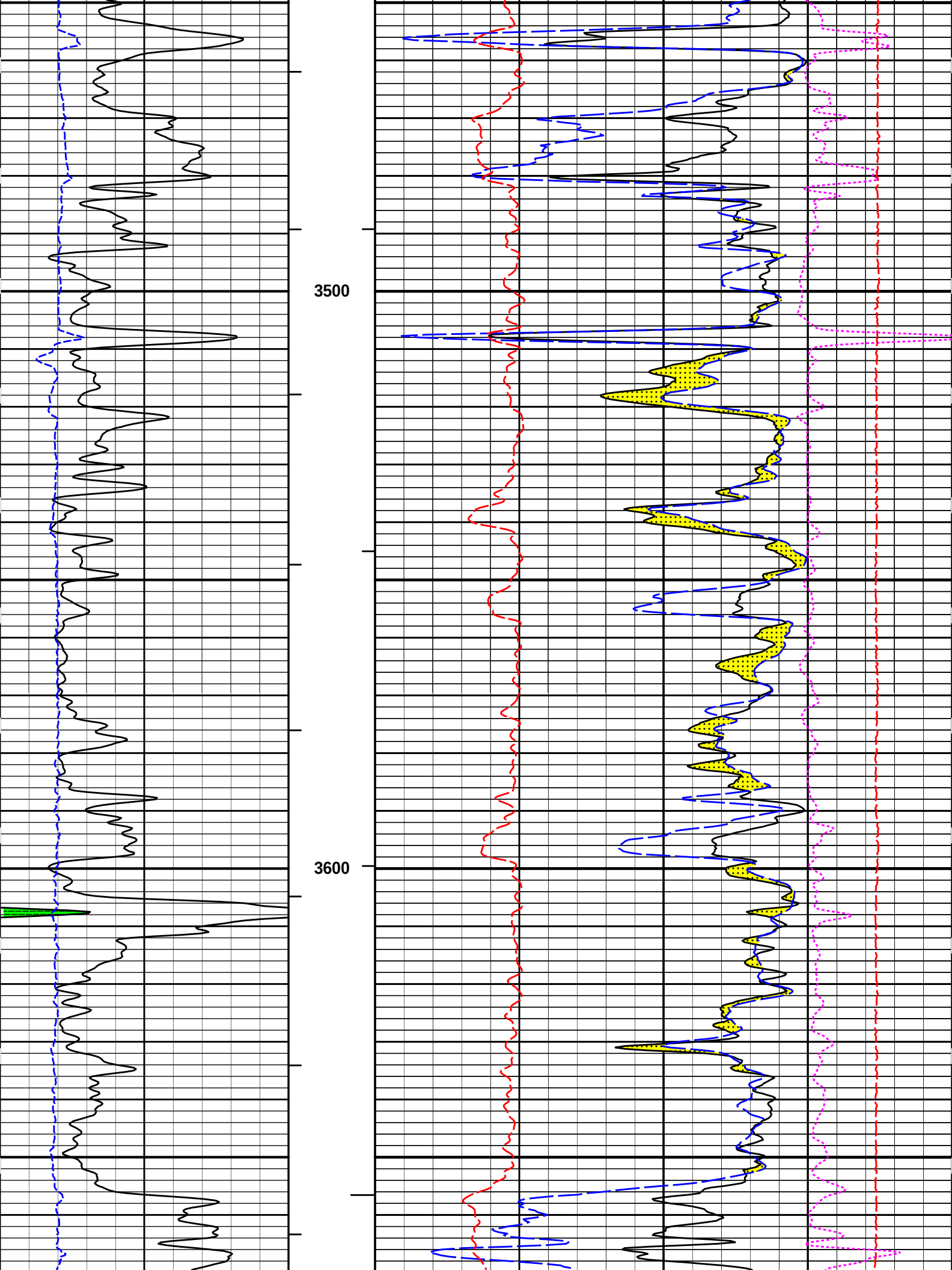
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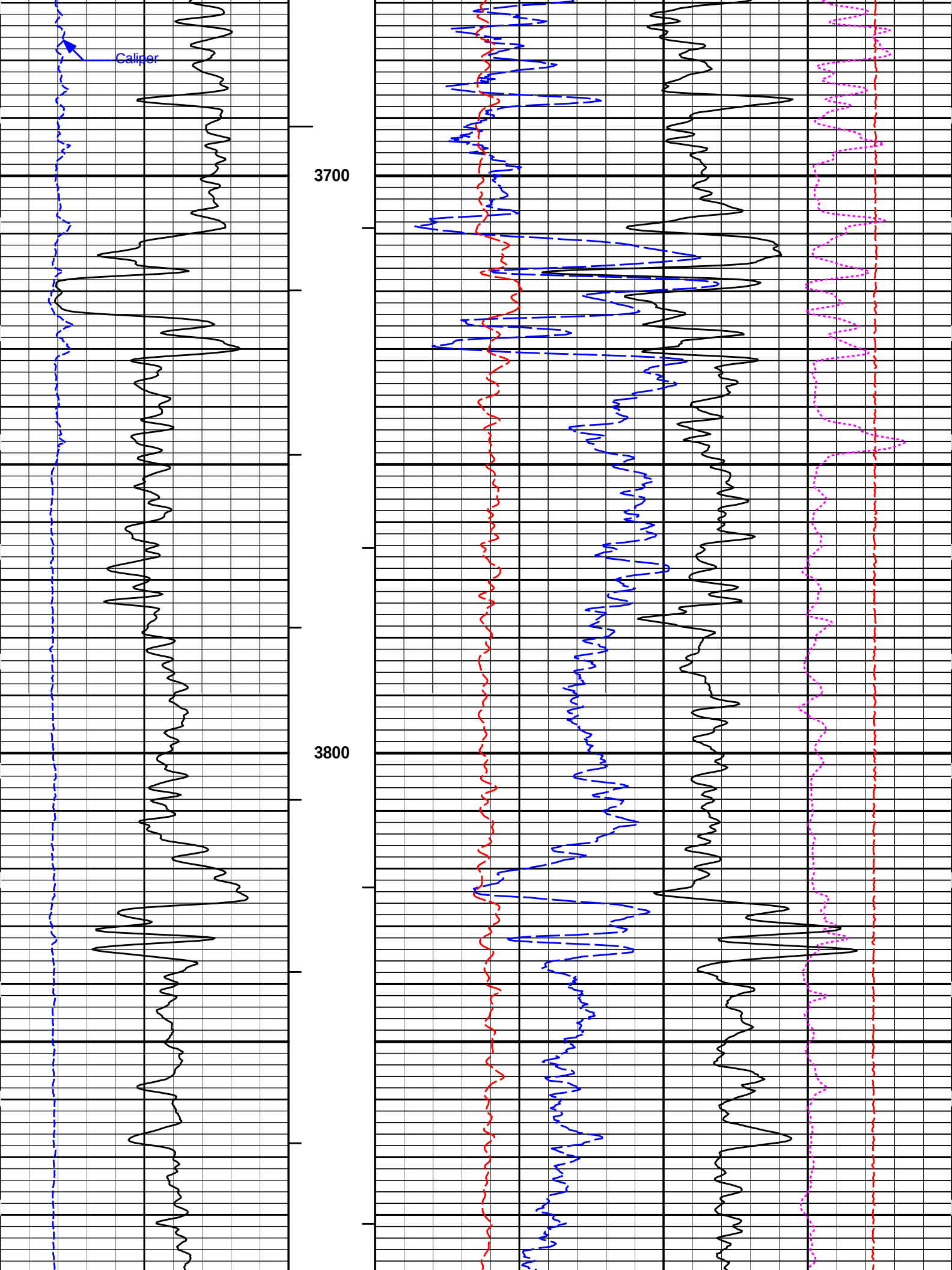
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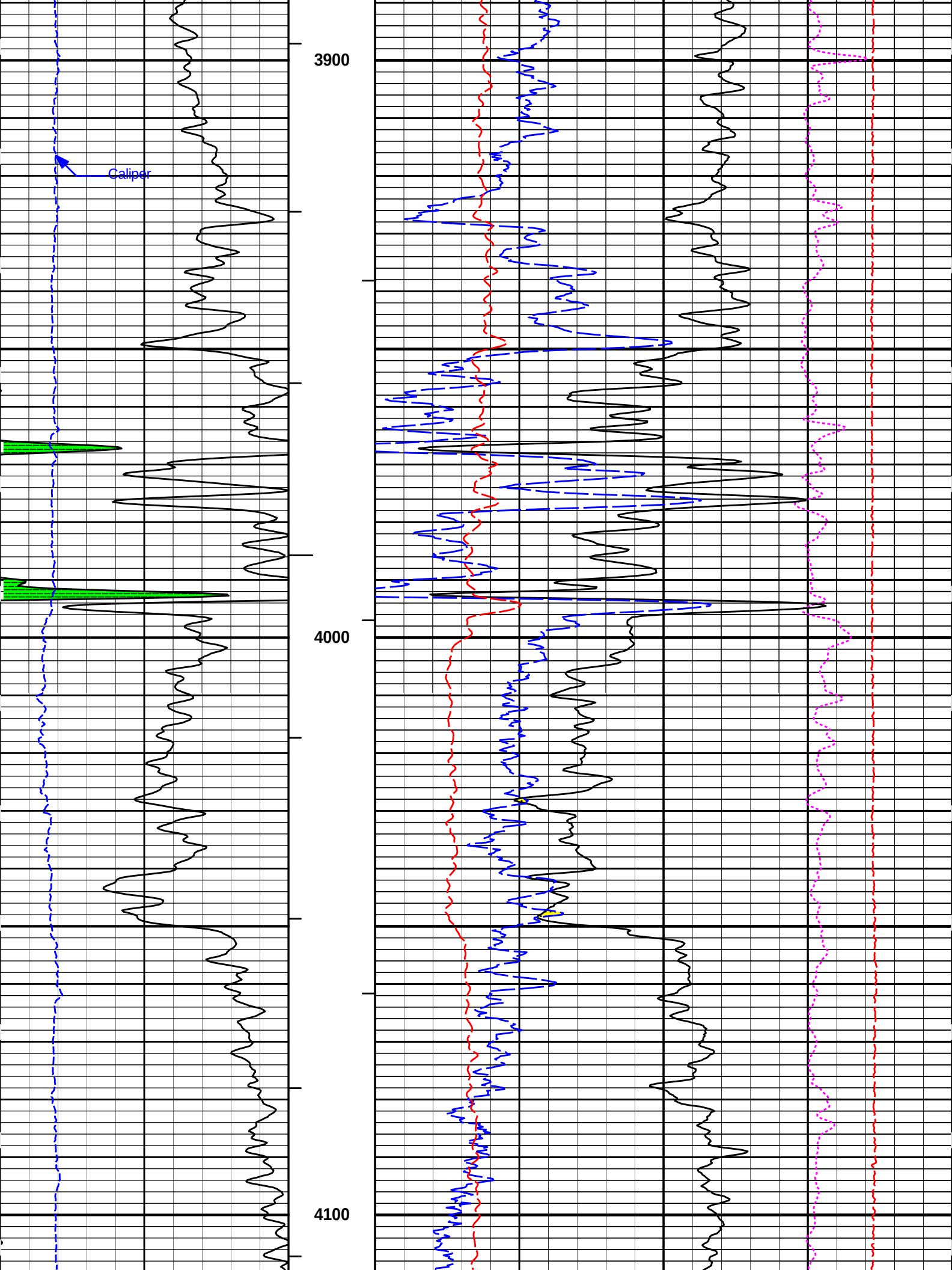
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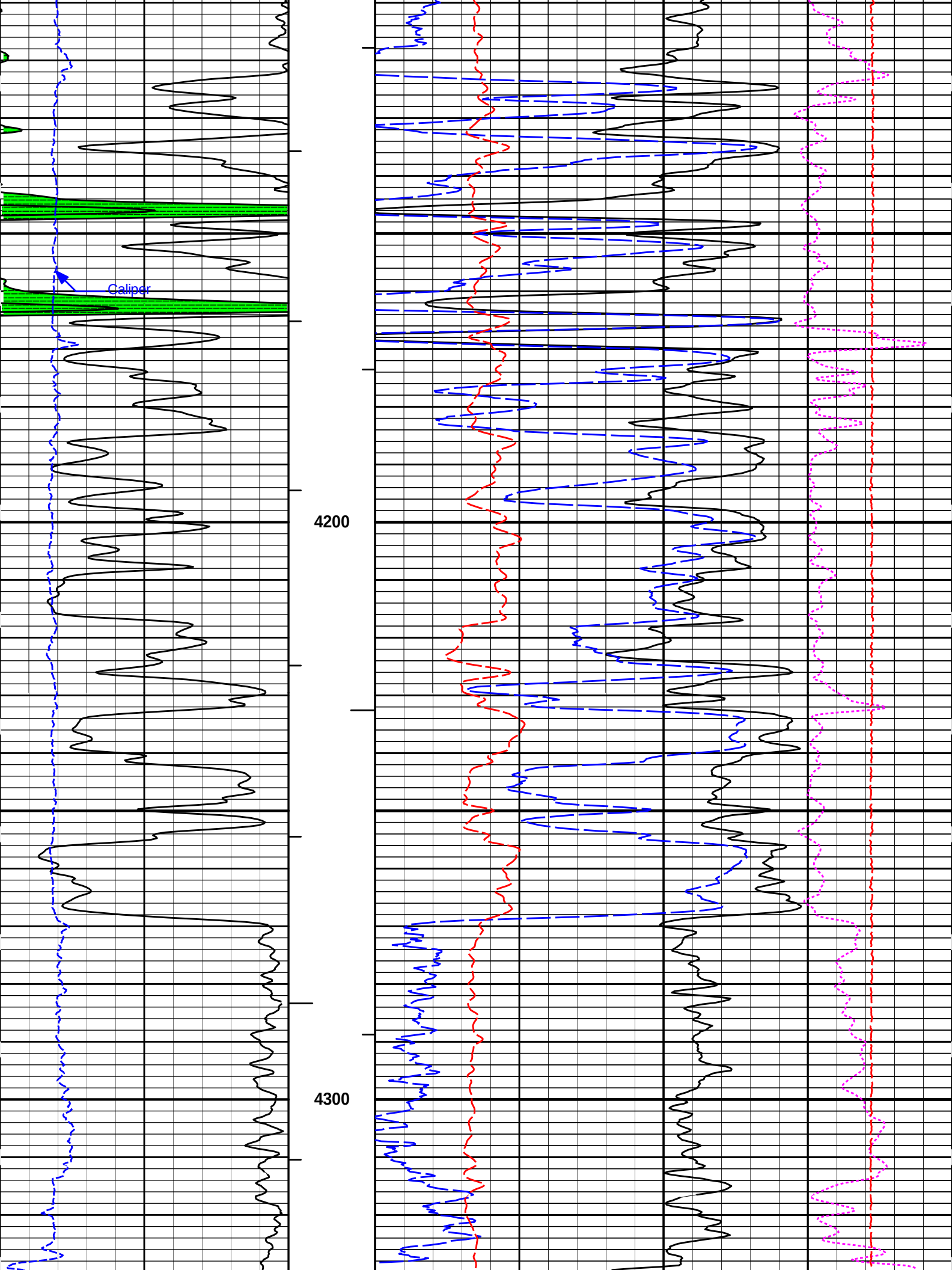
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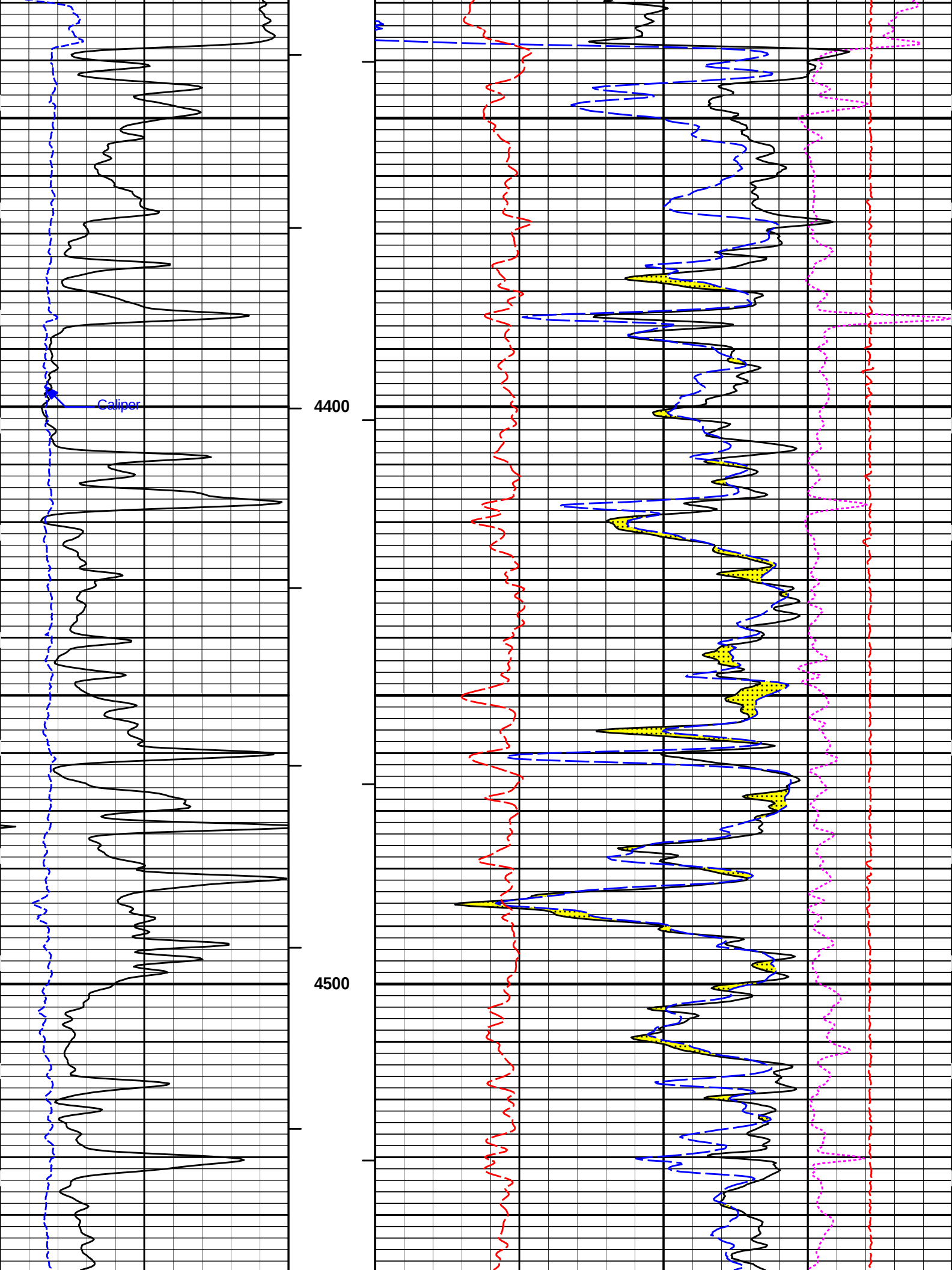
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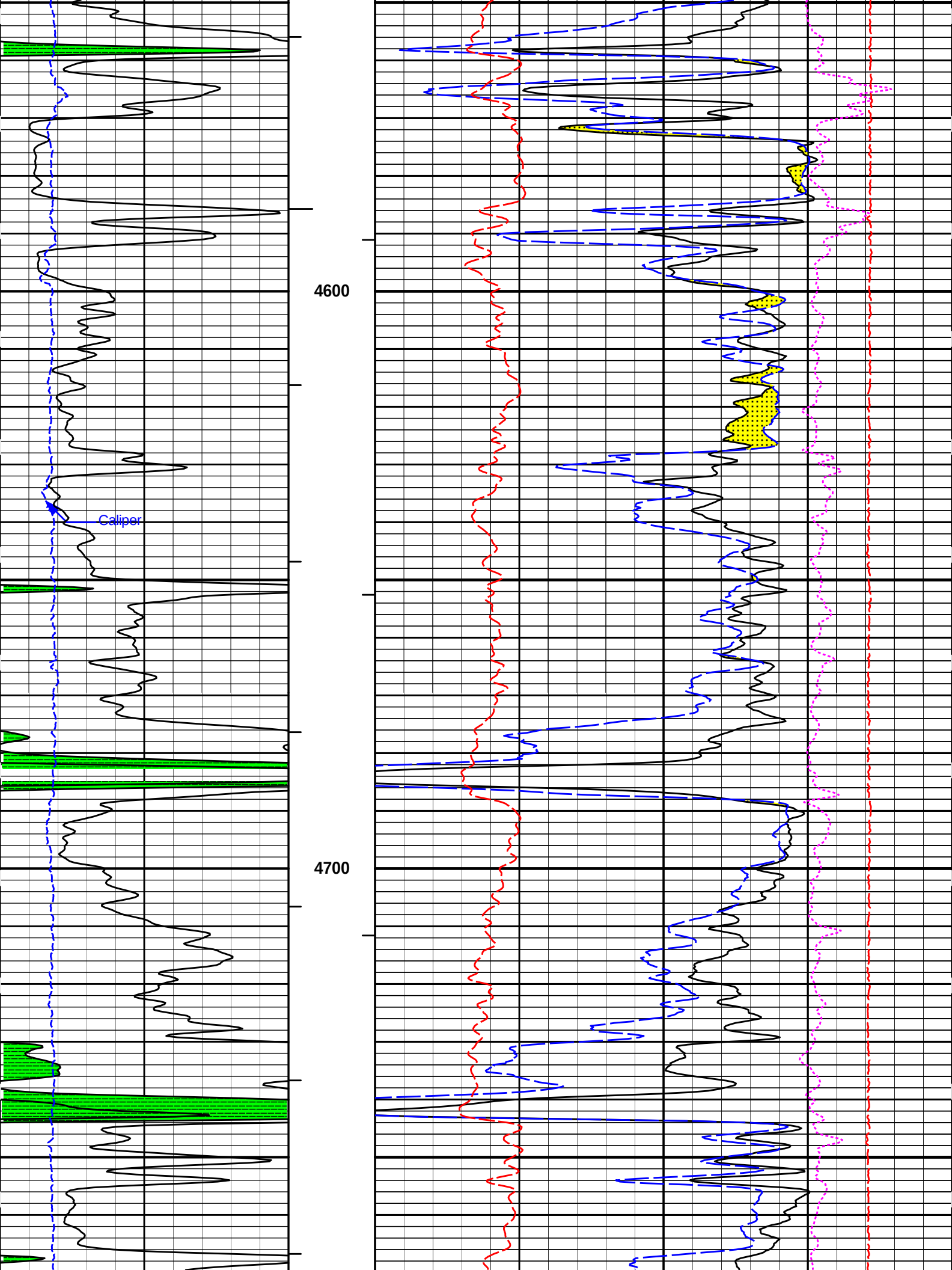
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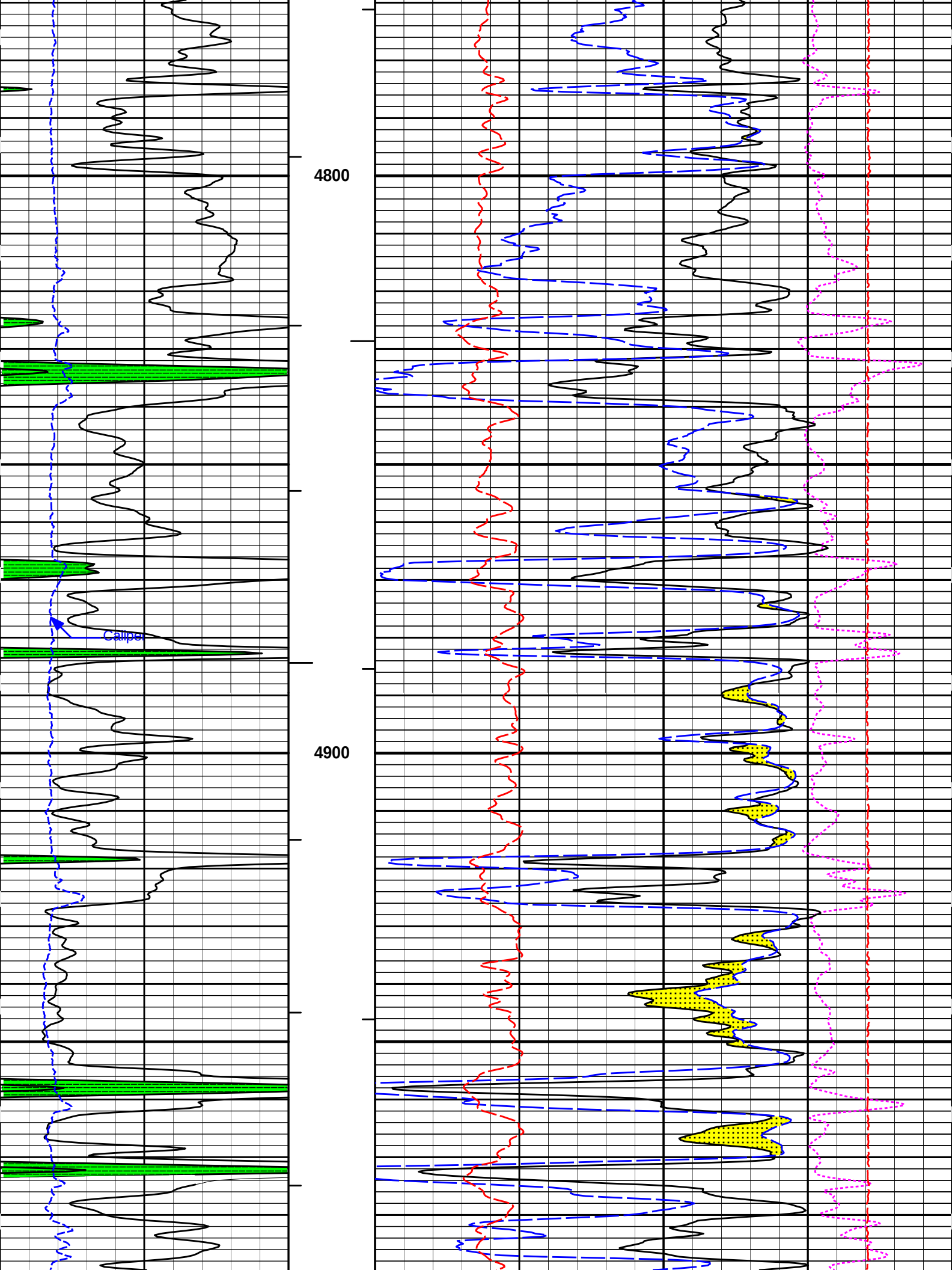
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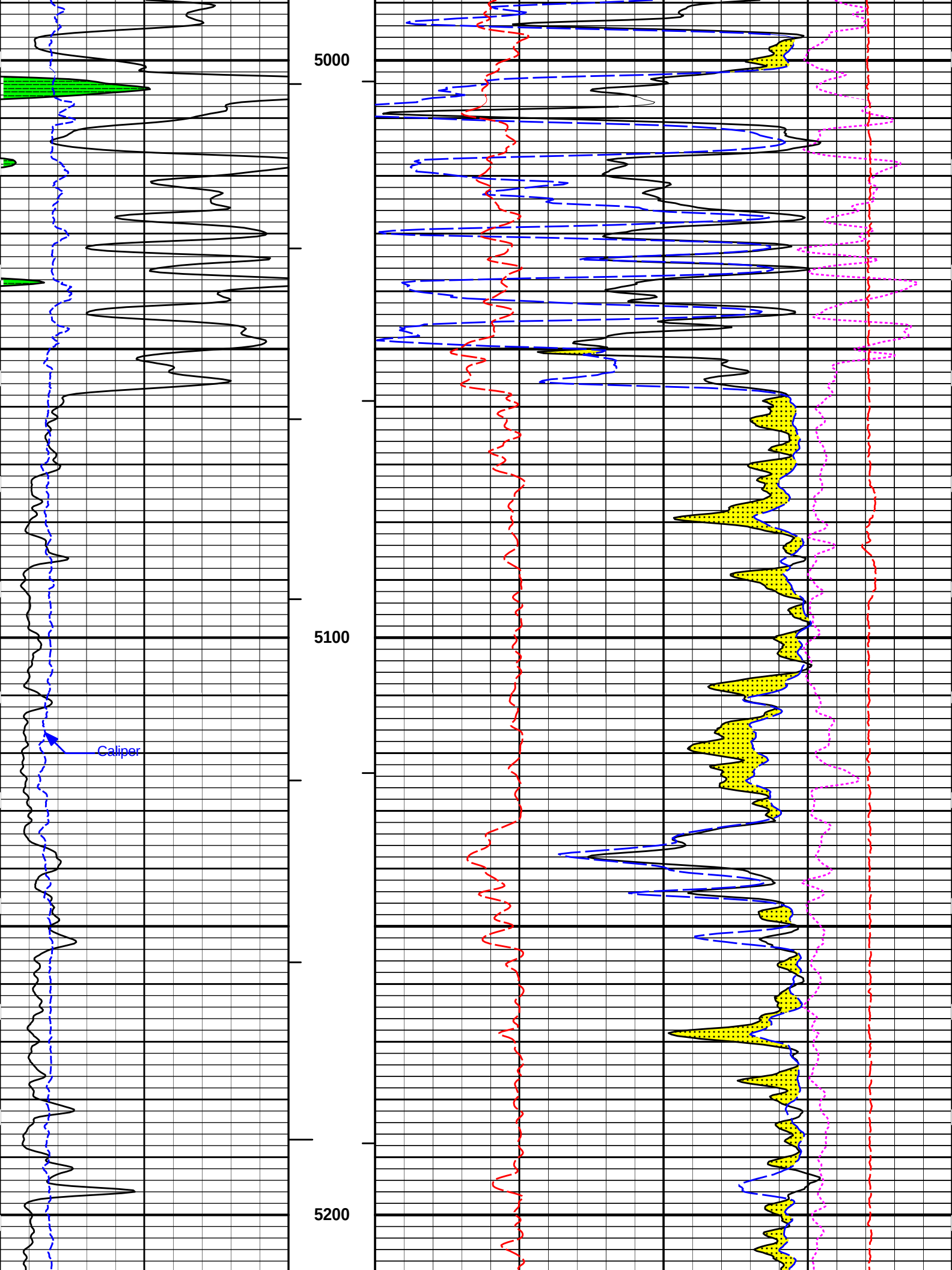
4900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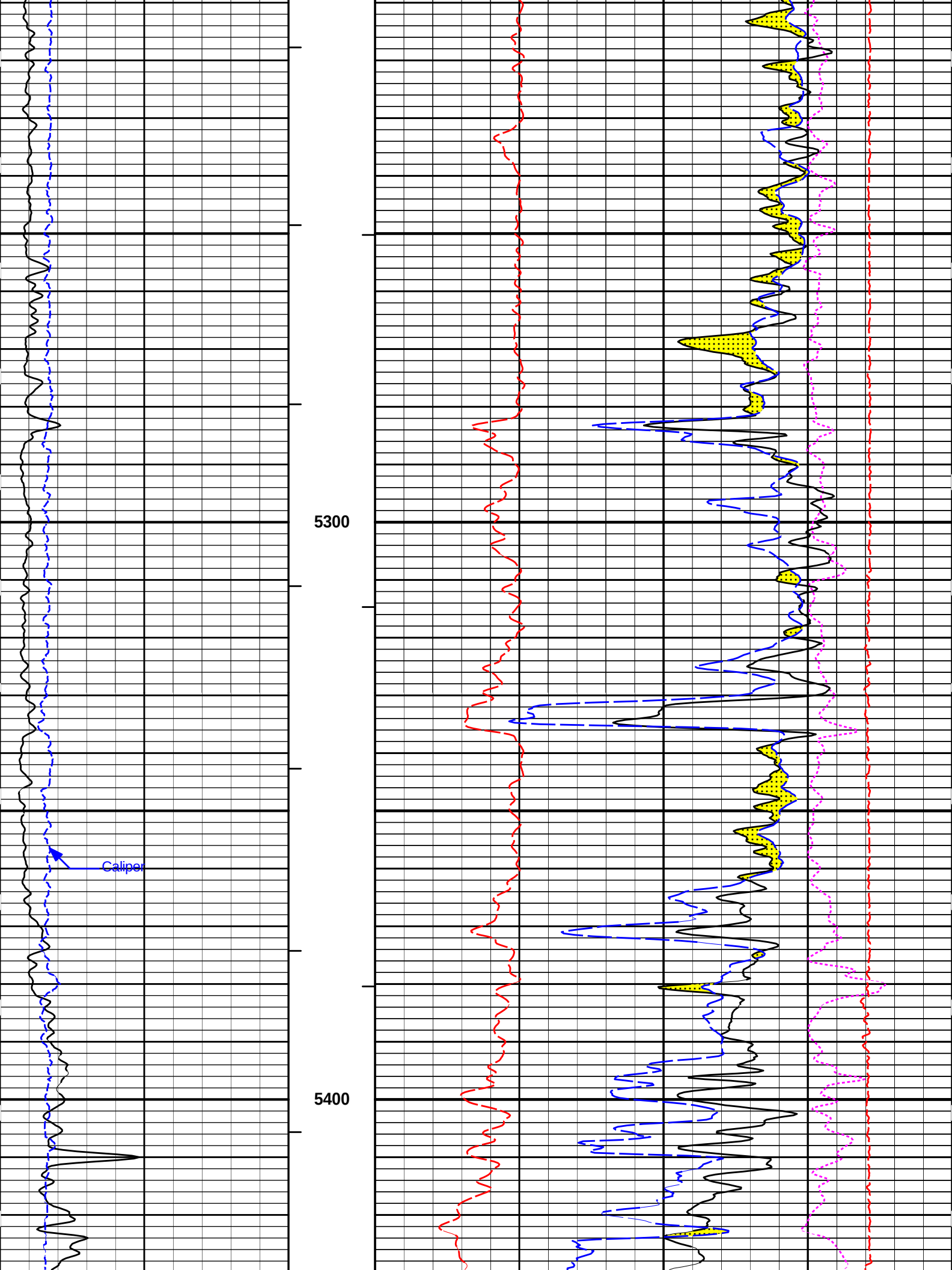
5100
5200
Caliper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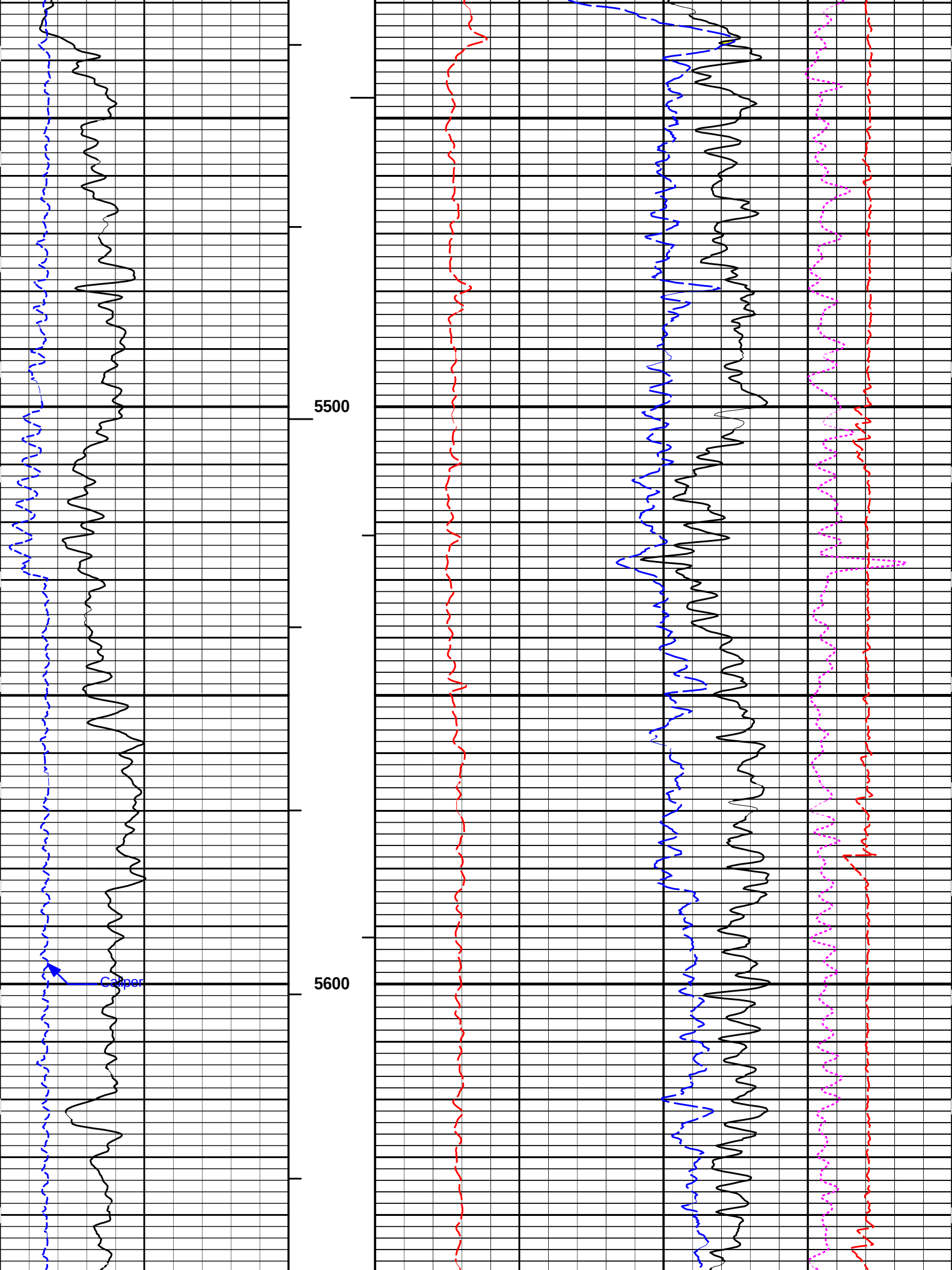
5400
Caliper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5600
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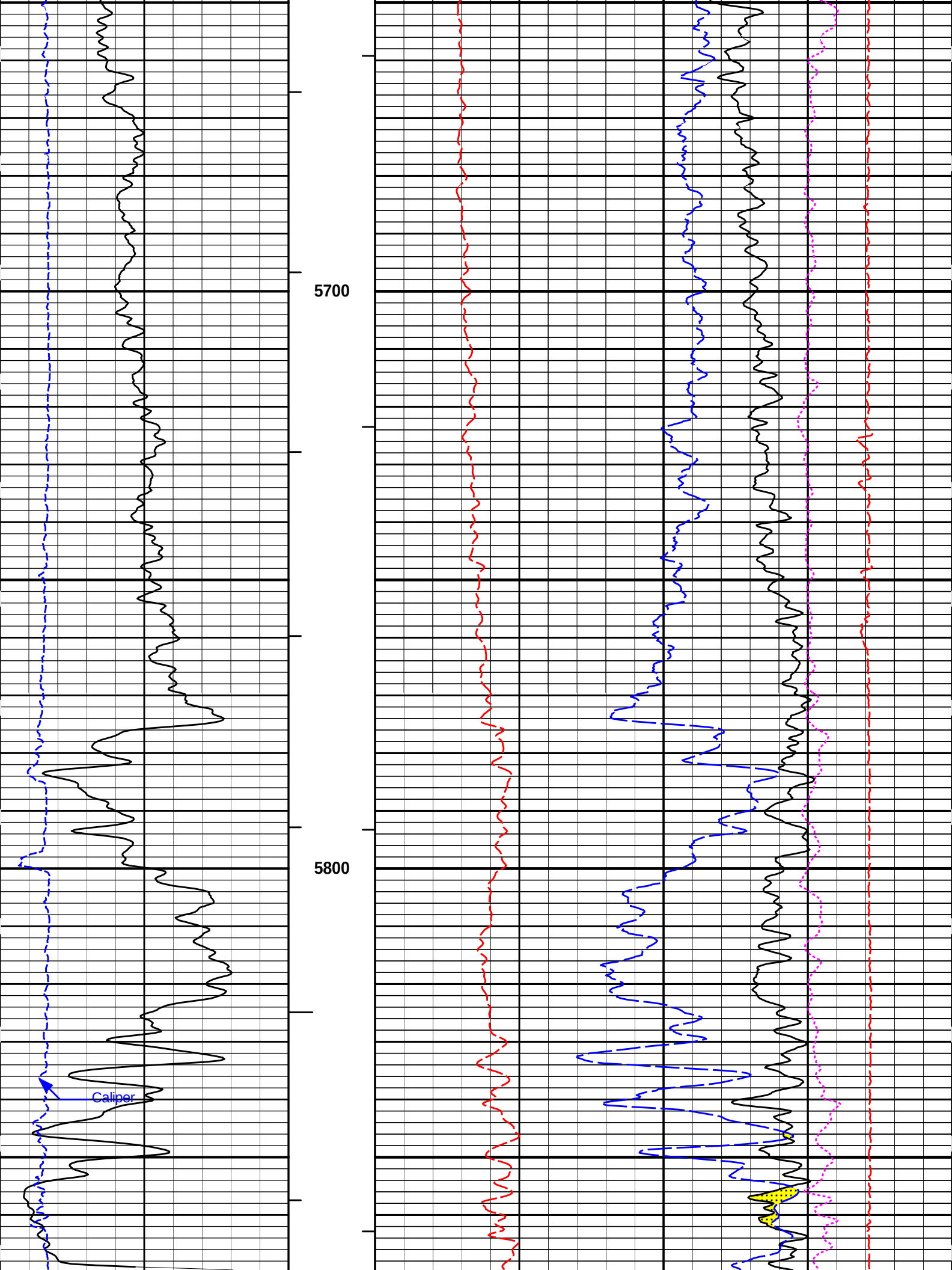
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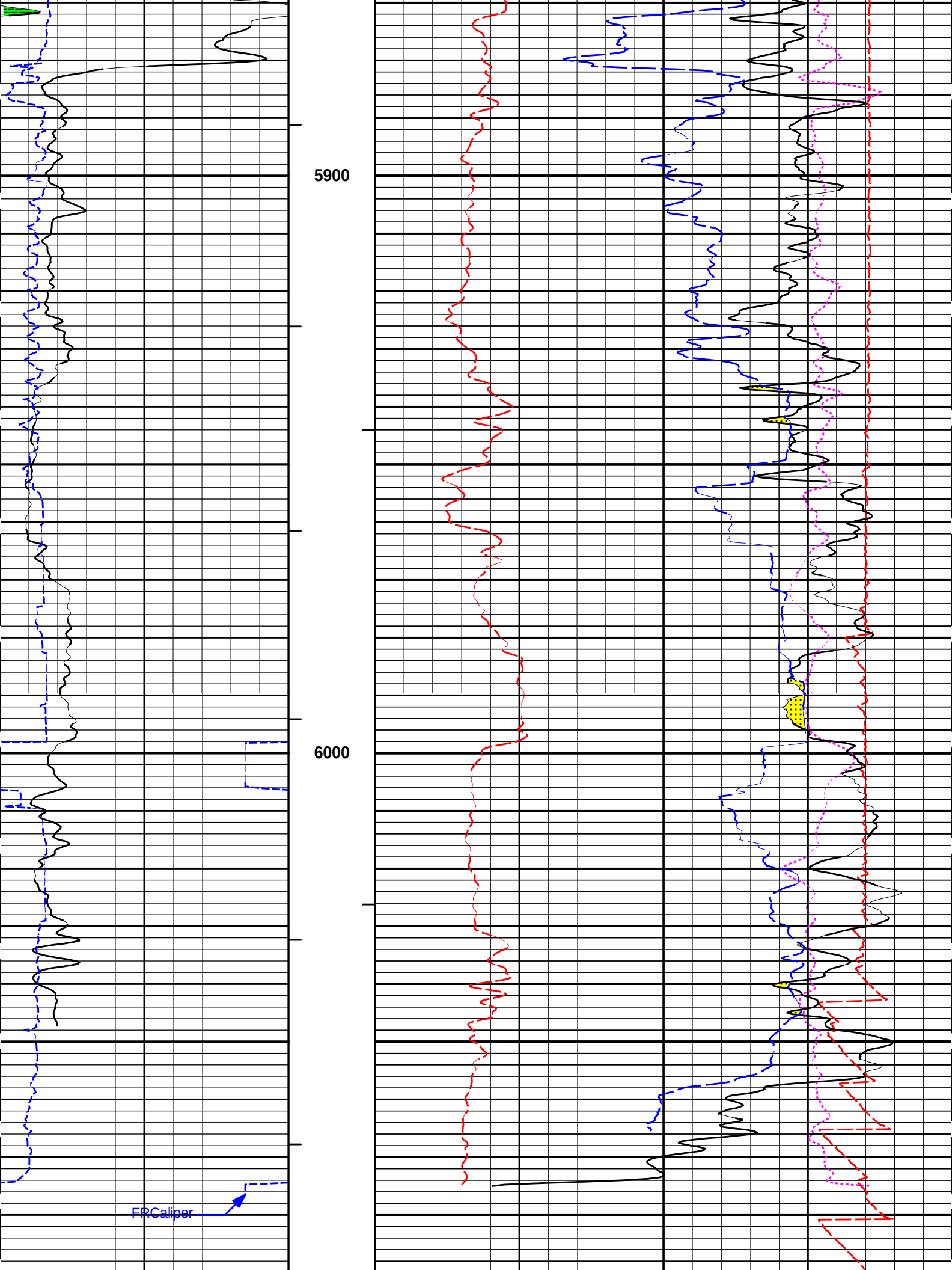
5800
Caliper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6000
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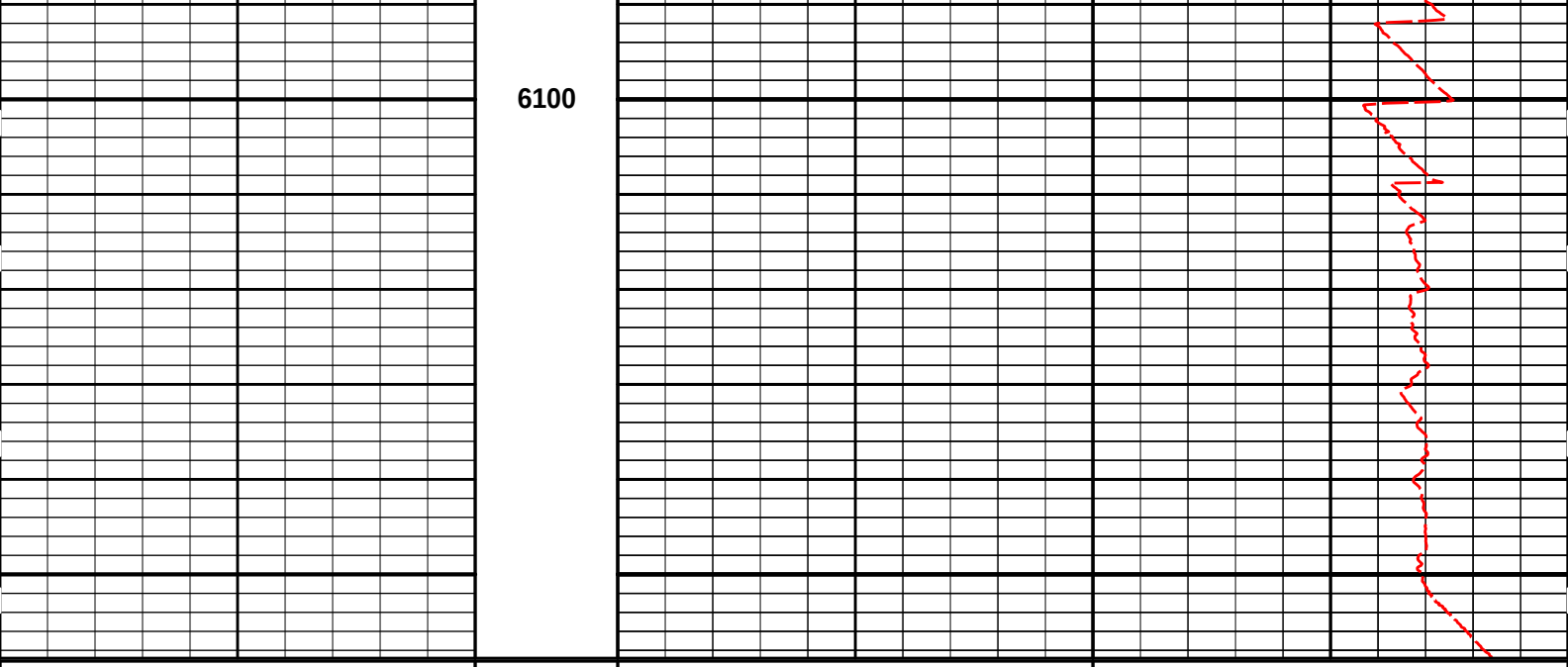


6 Caliper 16
inches
0 Gamma API 150
api
SHALE

MD
1 : 240
ft

AHVT
BHVT

0 Pe 10

-0.25 DensityCorr 0.25
gram per cc
15K Tension 0
pounds

30 DensityPorosity -10
%
30 Neutron Porosity -10
%
CROSSOVER

HALLIBURTON

Plot Time: 27-Feb-14 15:23:11
Plot Range: 770 ft to 6158.83 ft
Data: BIRD_3319_3-6\Well Based\CASING\
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 27-Feb-14 15:23:11
Plot Range: 770 ft to 6158.83 ft
Data: BIRD_3319_3-6\Well Based\CASING\
Plot File: \\-LOCAL-\BIRD_3319_3-6\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-BN\PORO\BULKD_5_MAIN_LIB

5 INCH MAIN LOG

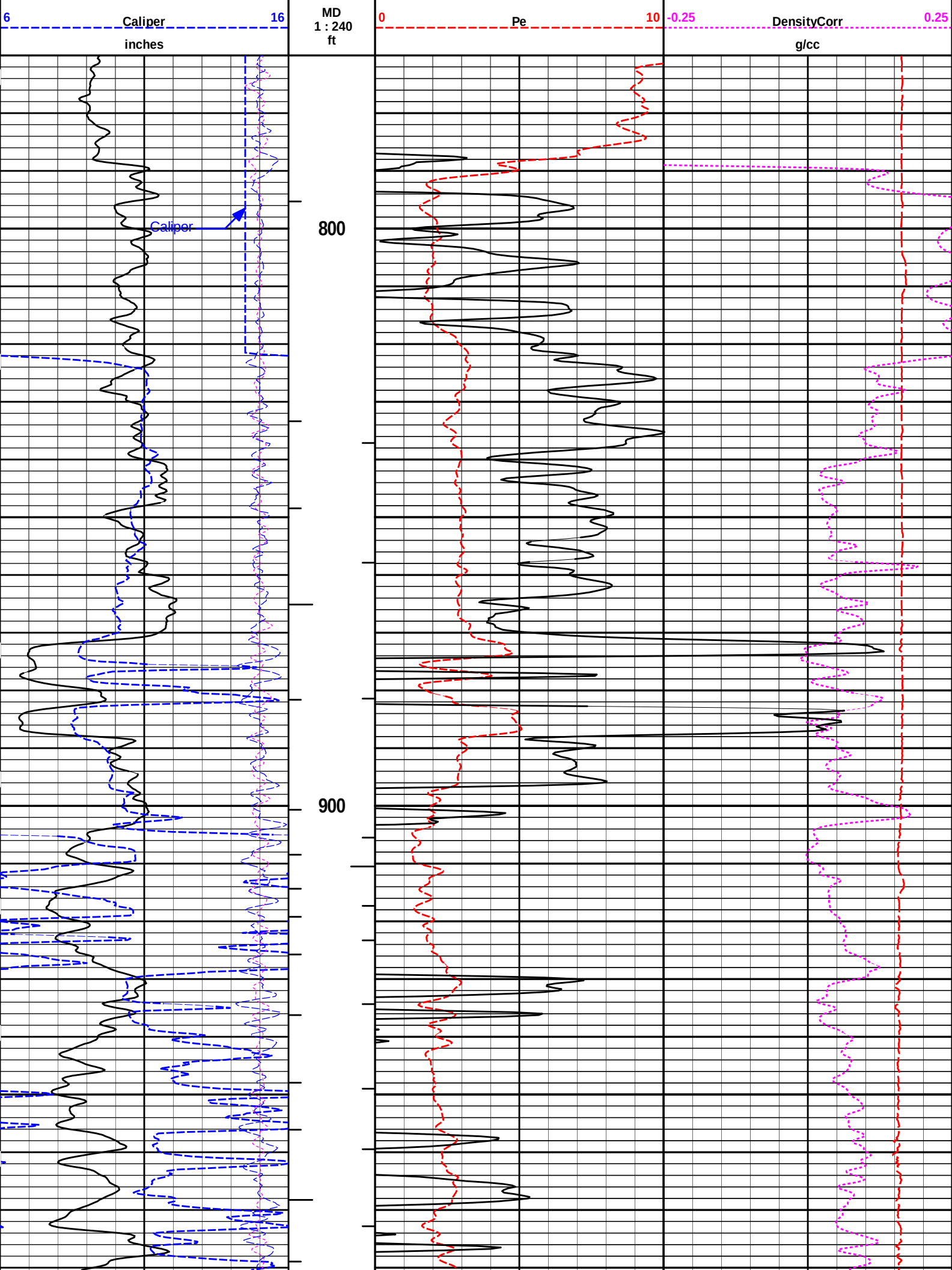
SHALE

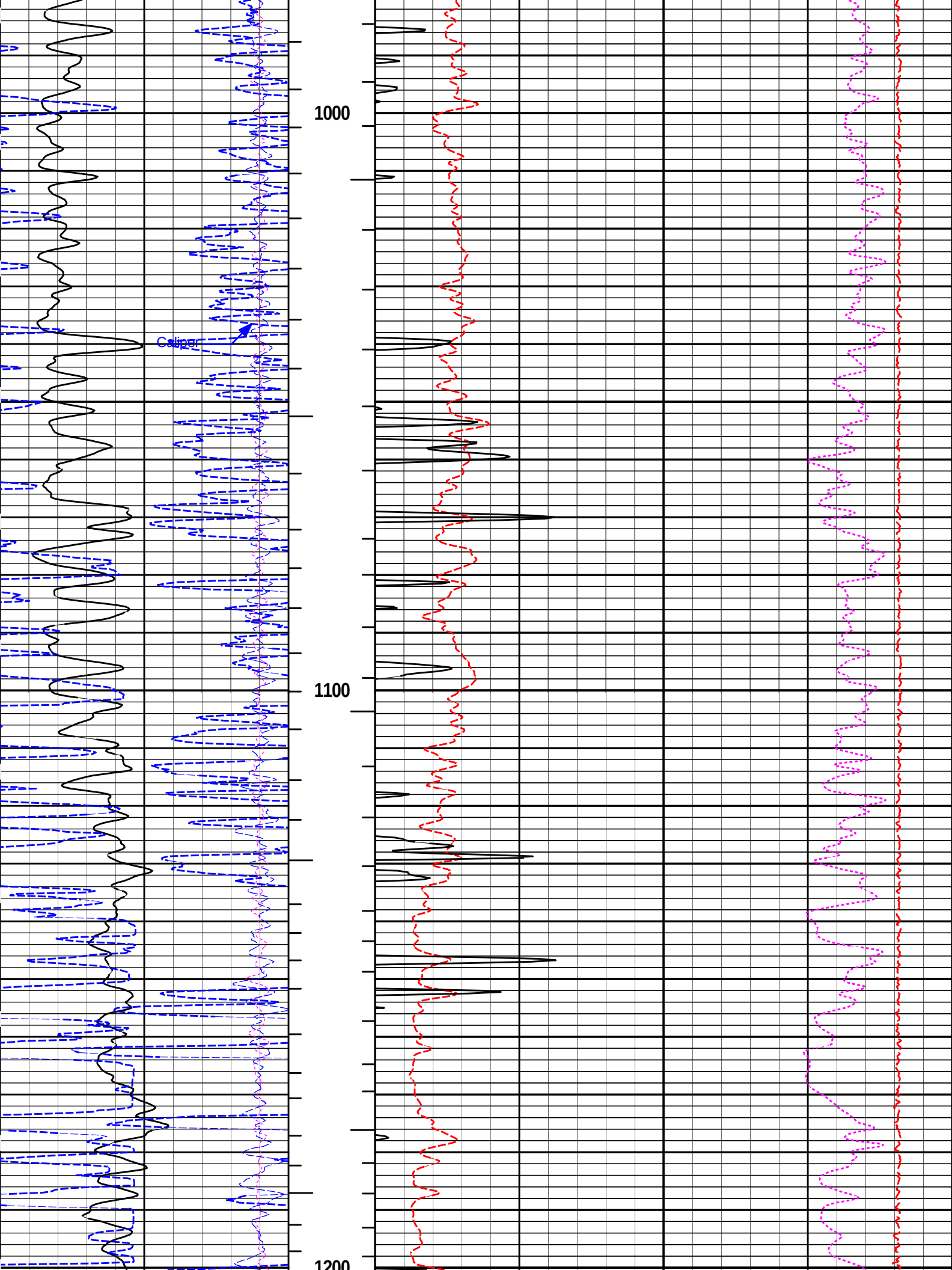
0 Gamma Ray 150
api
18 FarQuality -2
-18 NearQuality 2

BHV
ft3
AHV
ft3

2 Bulk Density 3
g/cc

15K Tension 0
pounds


6
Caliper
16
inches
MD
1 : 240
ft
0
Pe
10
-0.25
DensityCorr
0.25
g/cc
Caliper
800
900


1000
Caliper
1100
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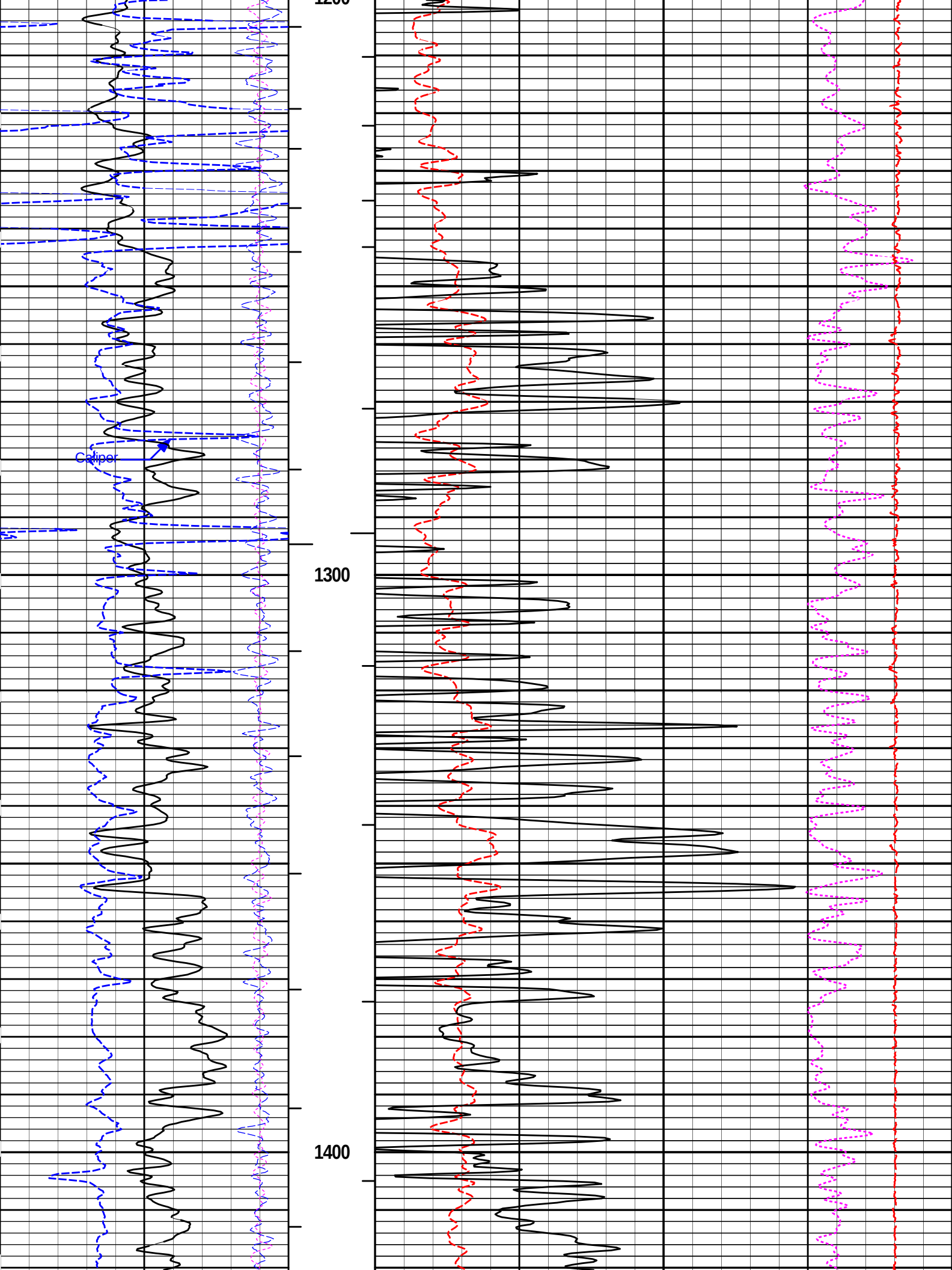
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1300
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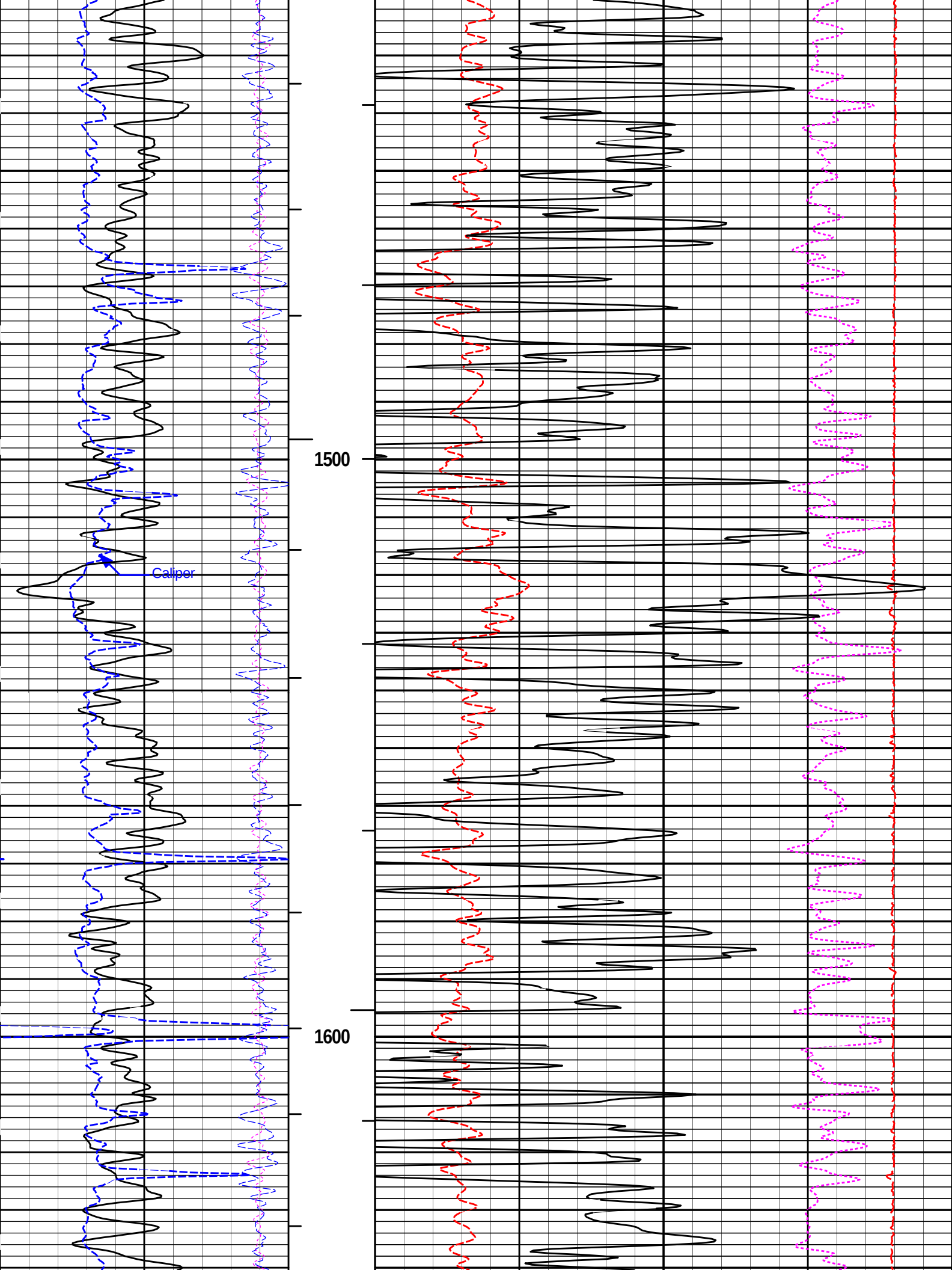
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Caliper
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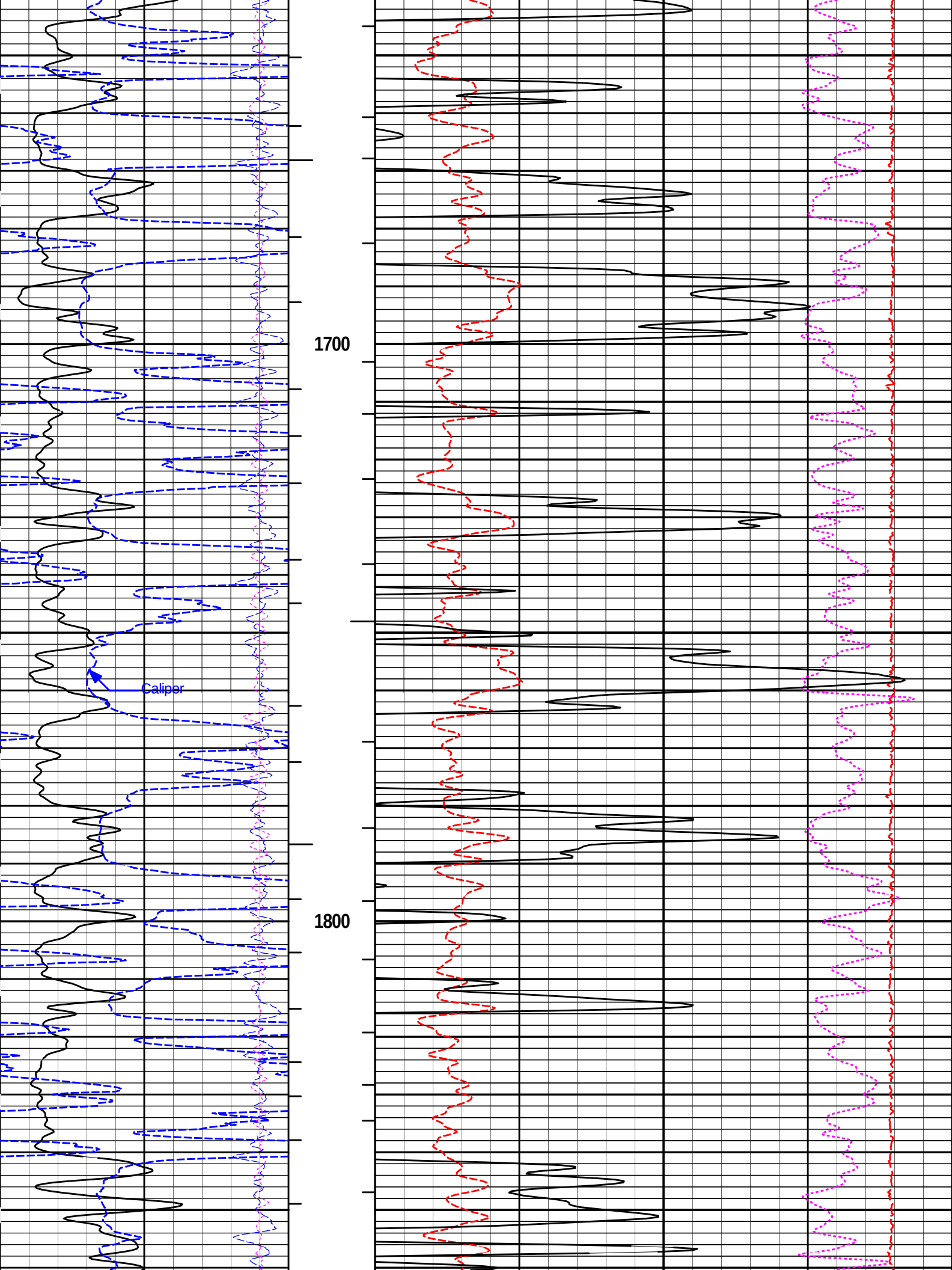
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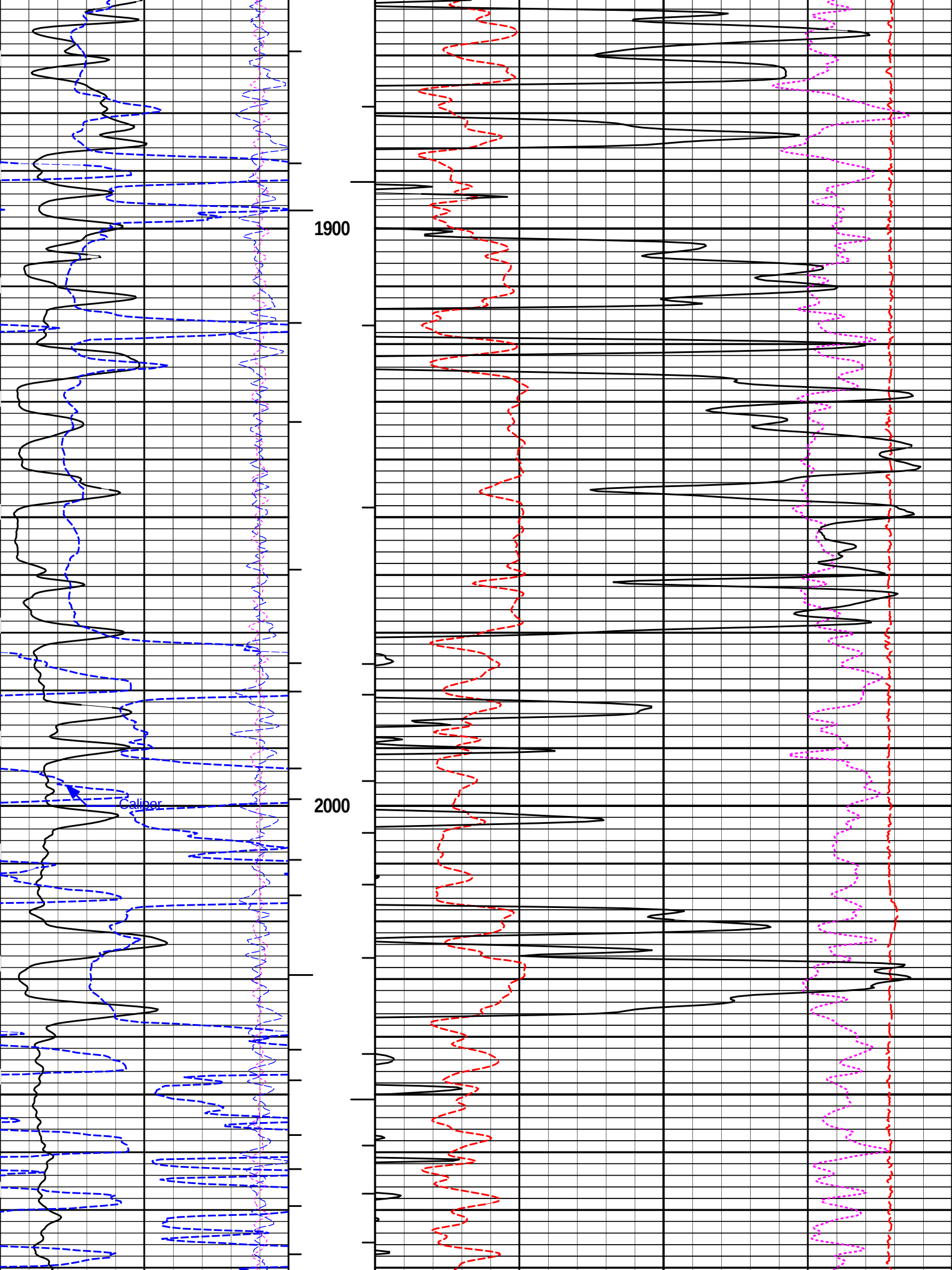
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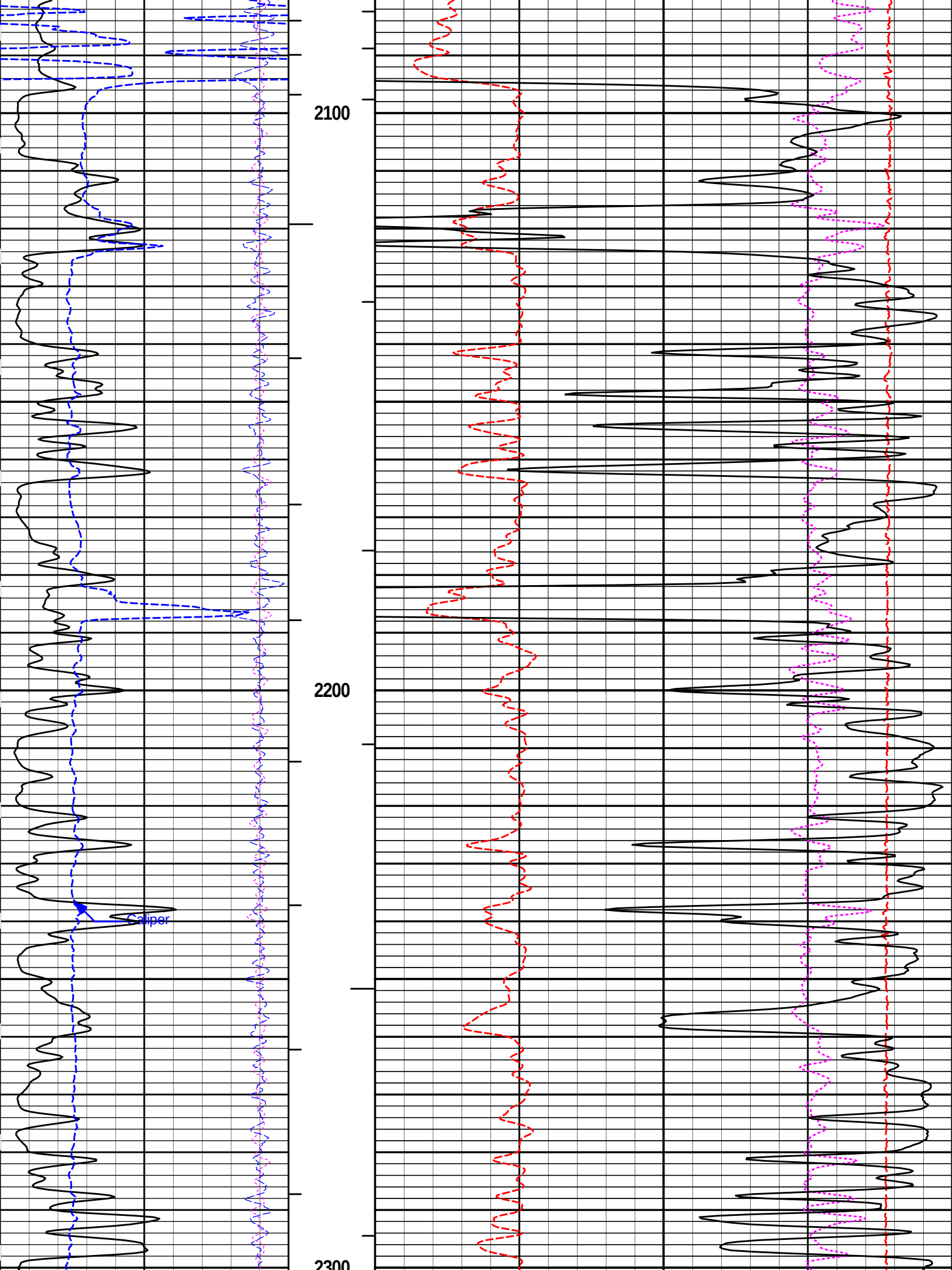
2000
Caliper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2300
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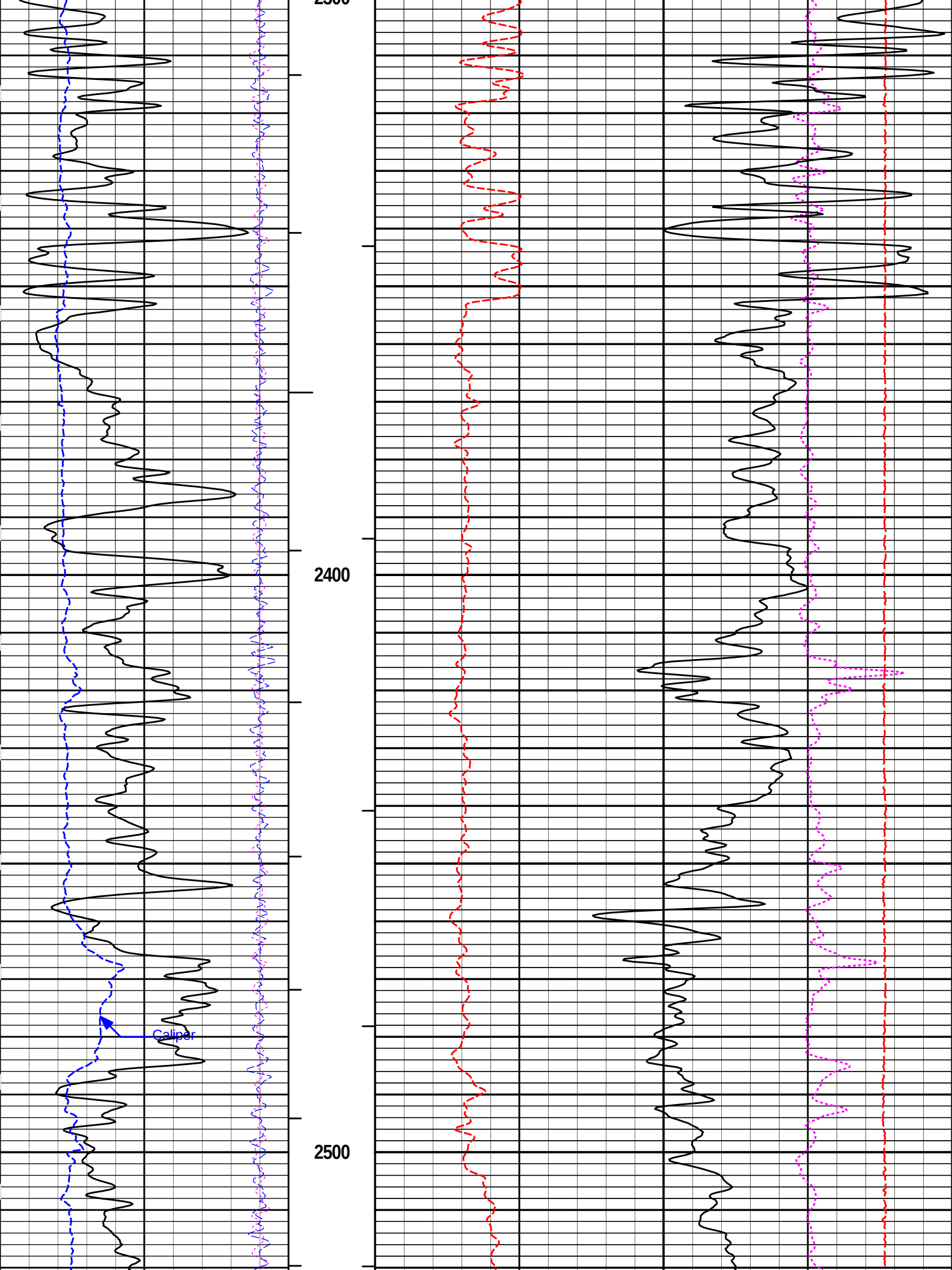
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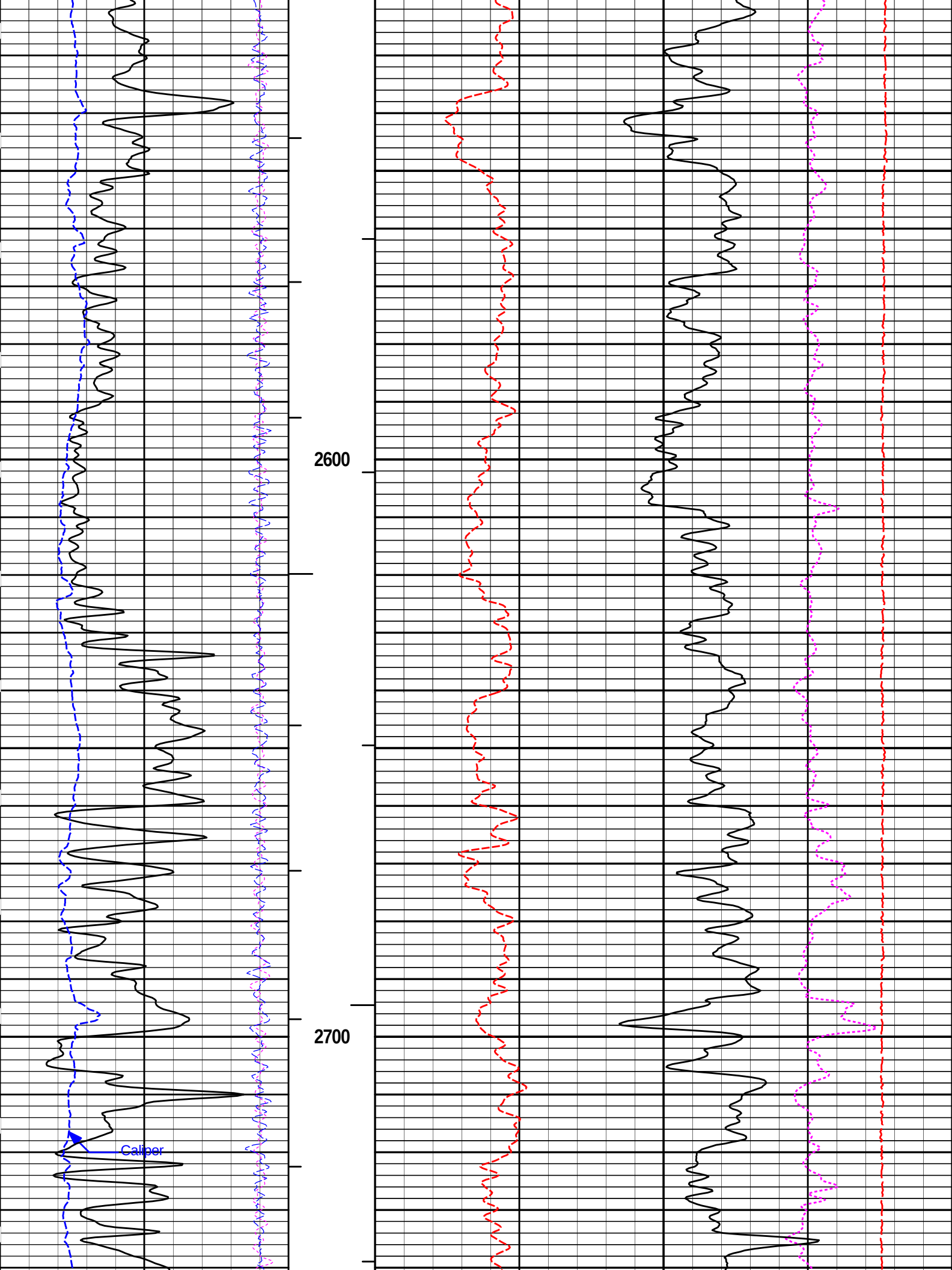
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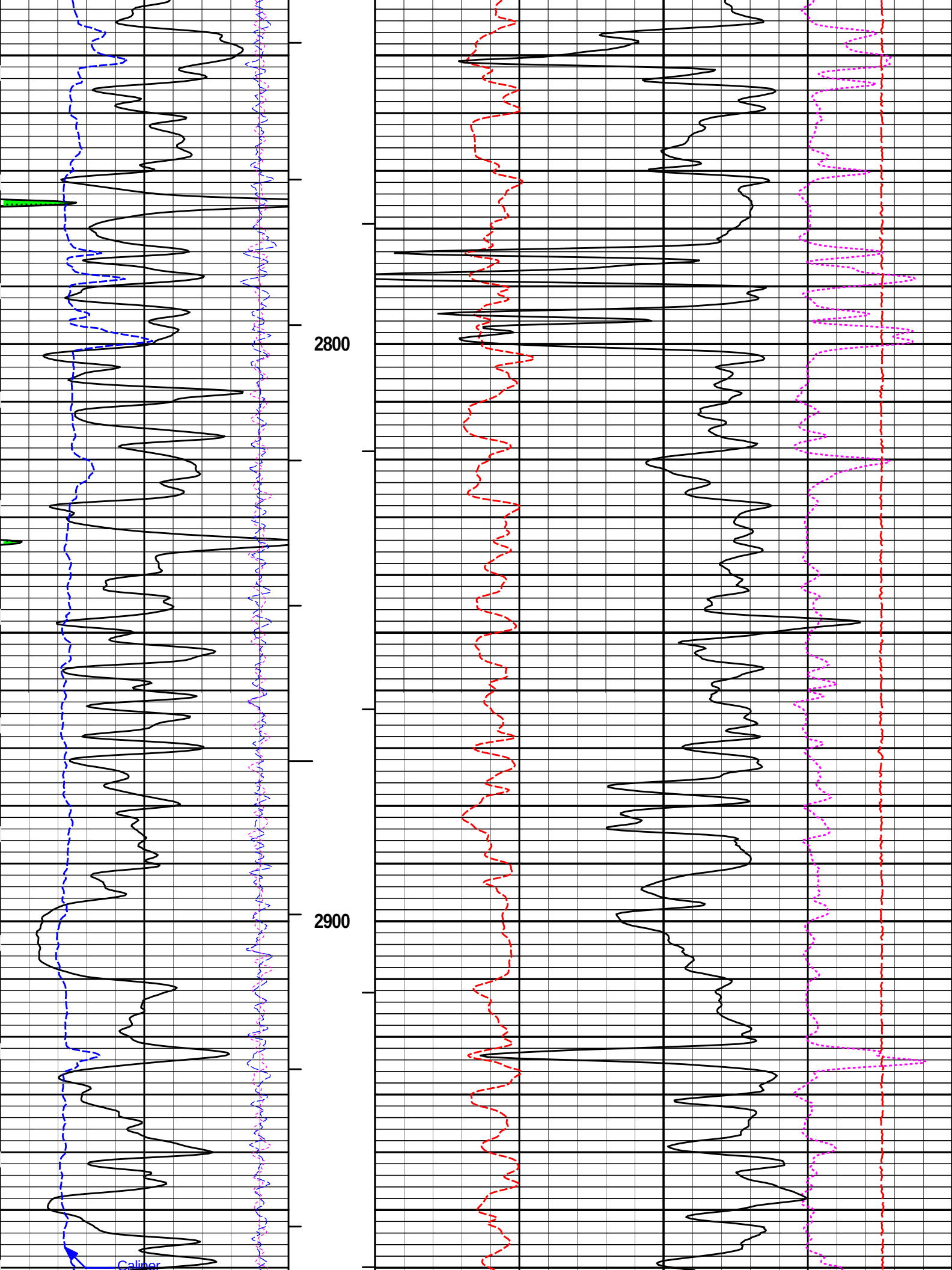
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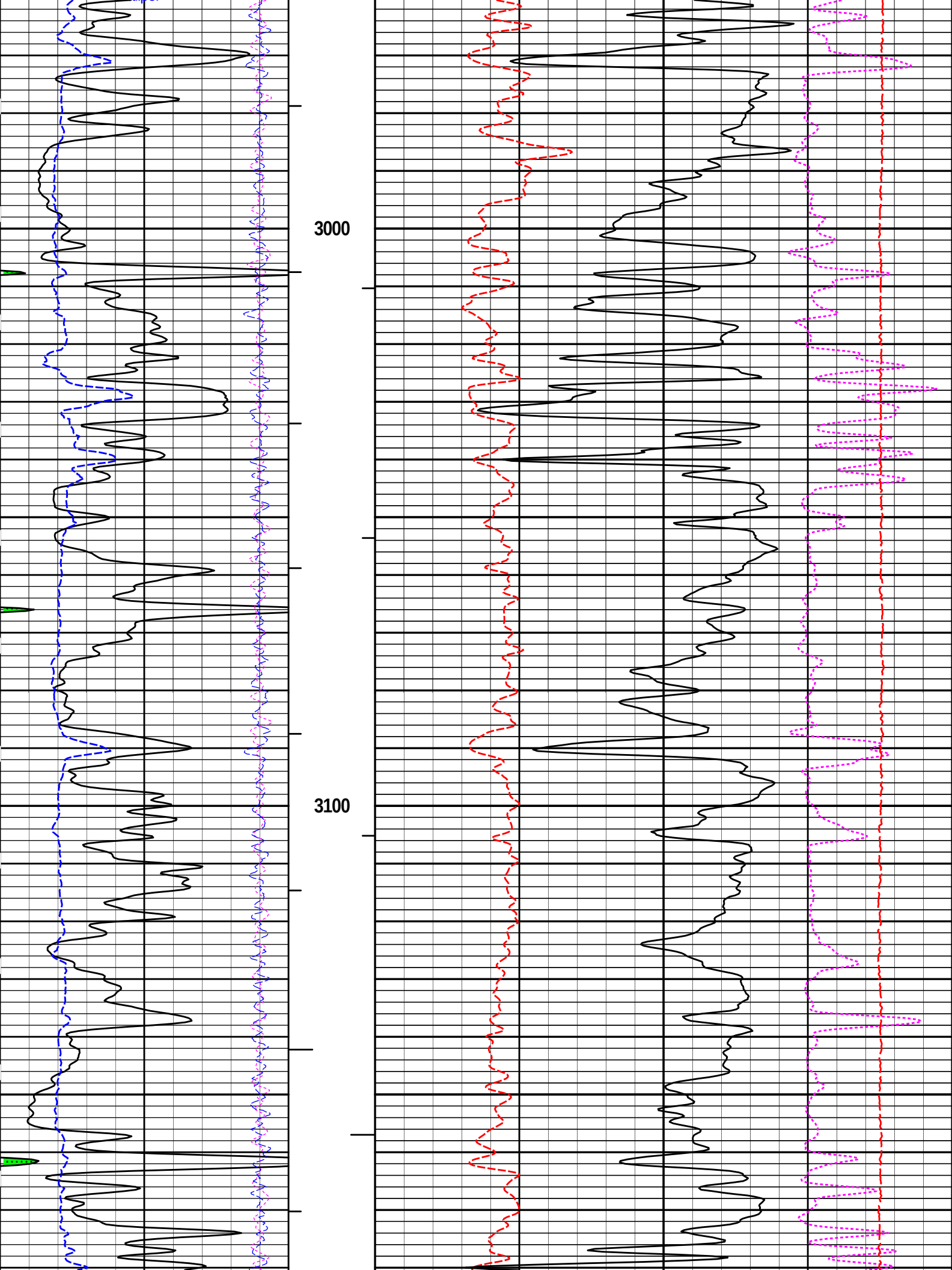
3000
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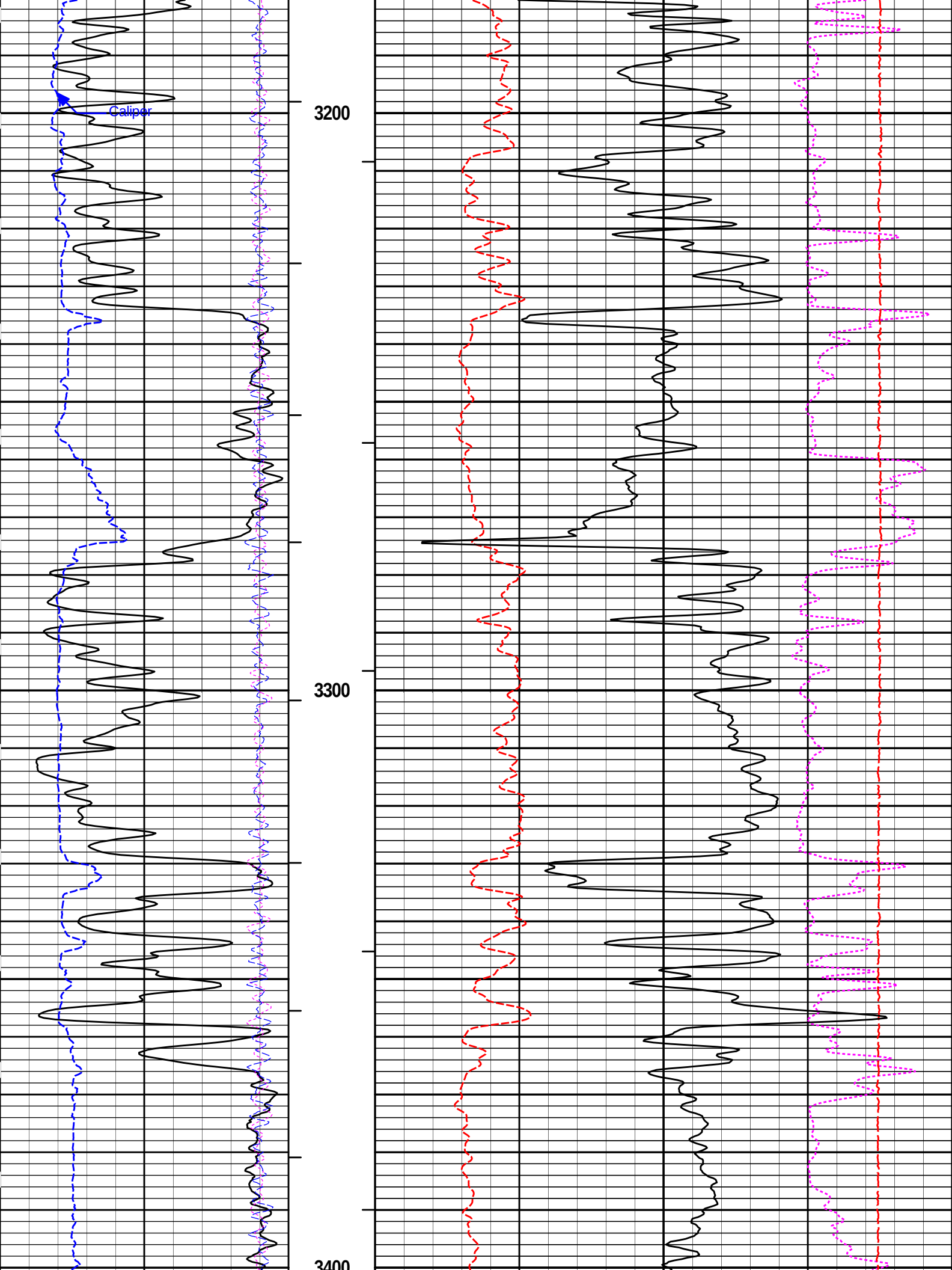
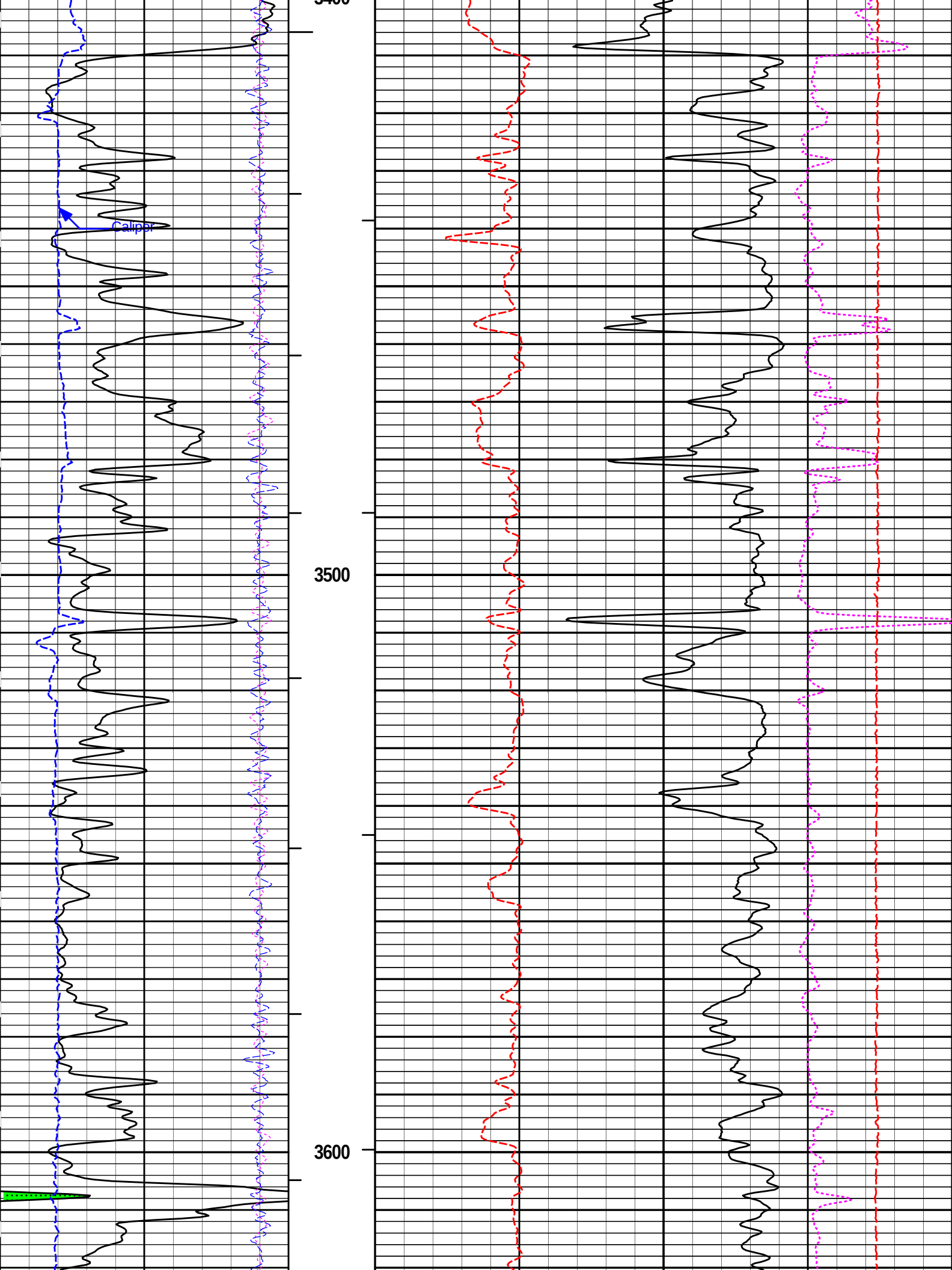

Caliper
3200
3300
3400


Caliper
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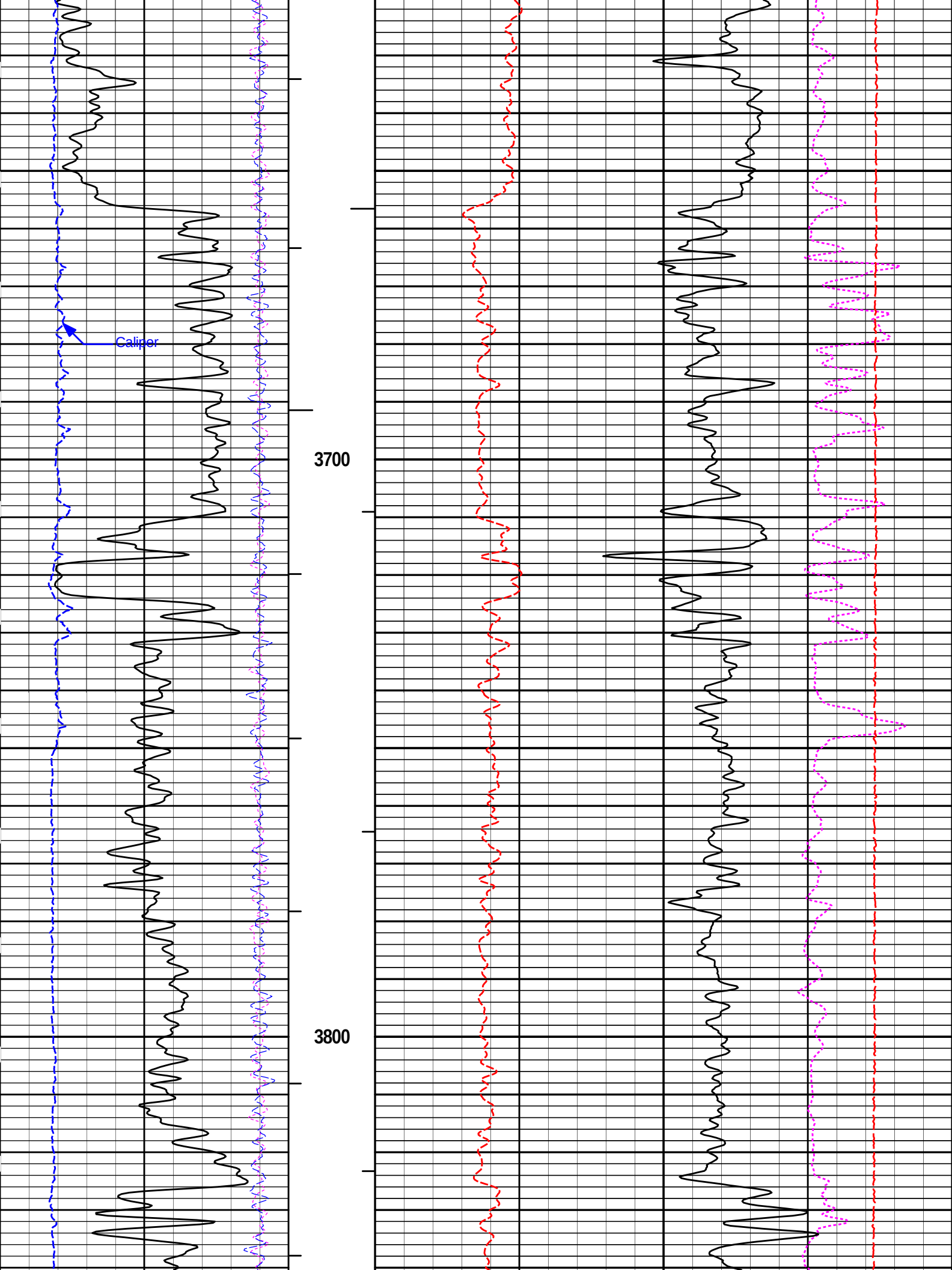
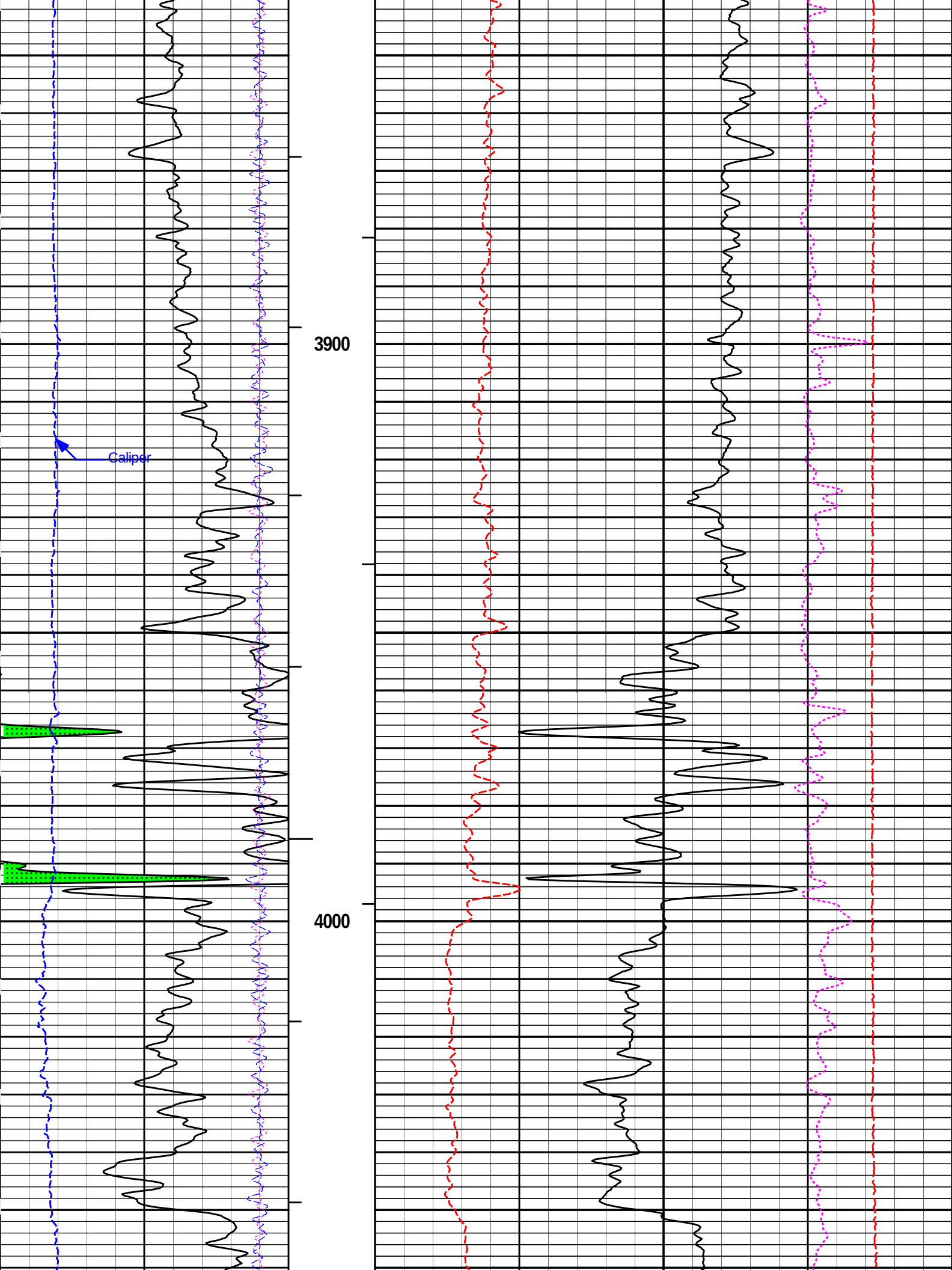
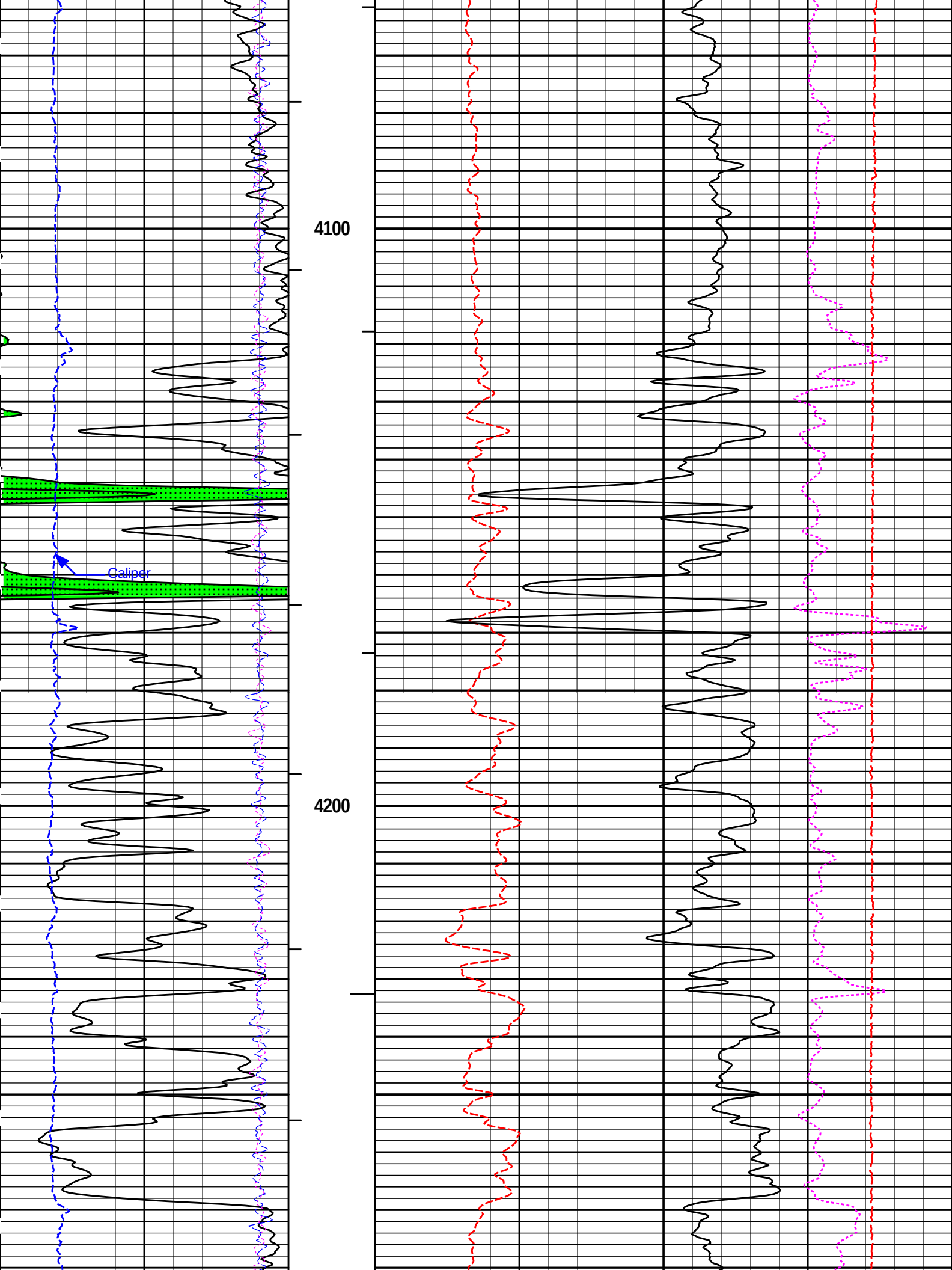
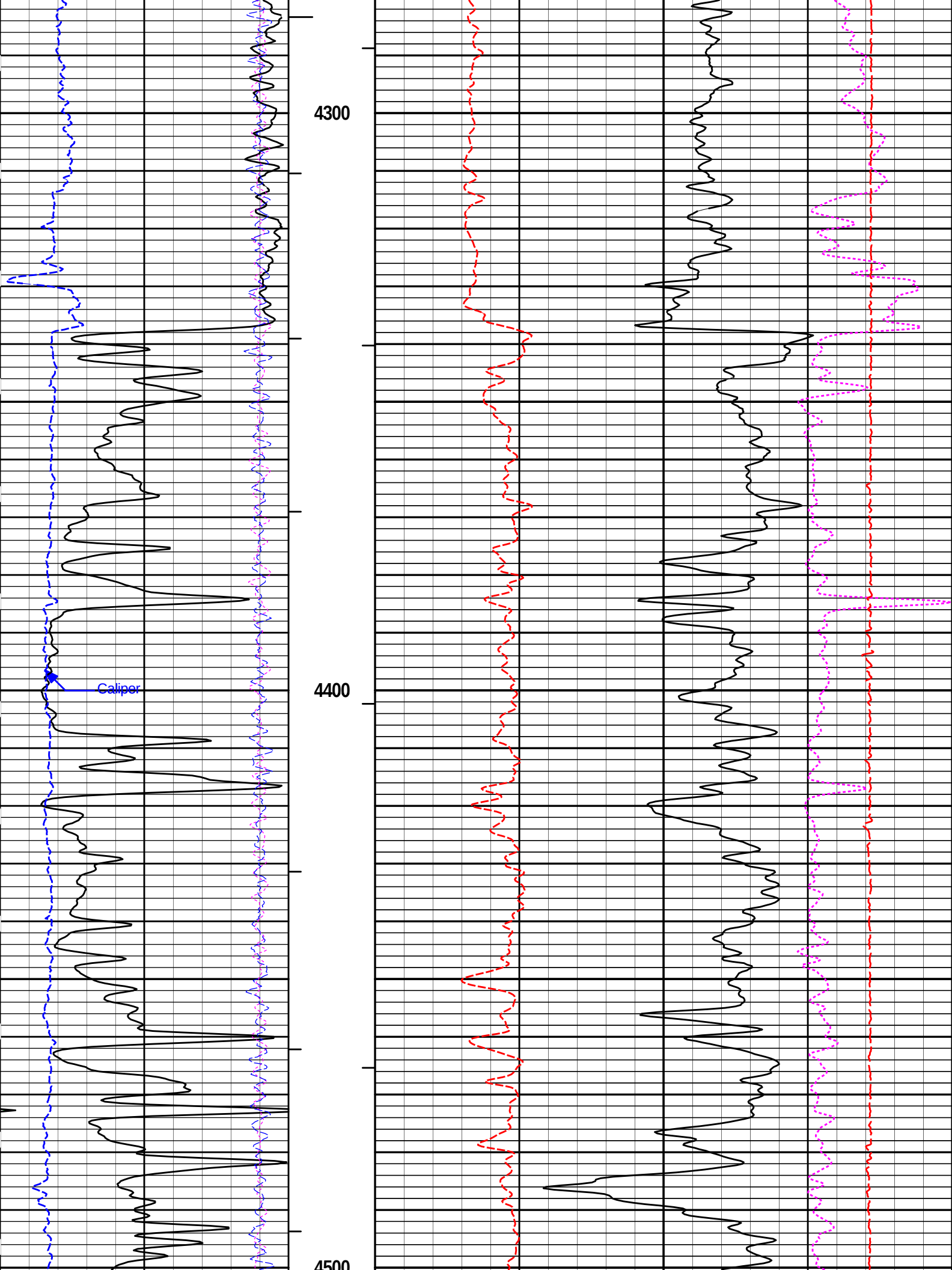
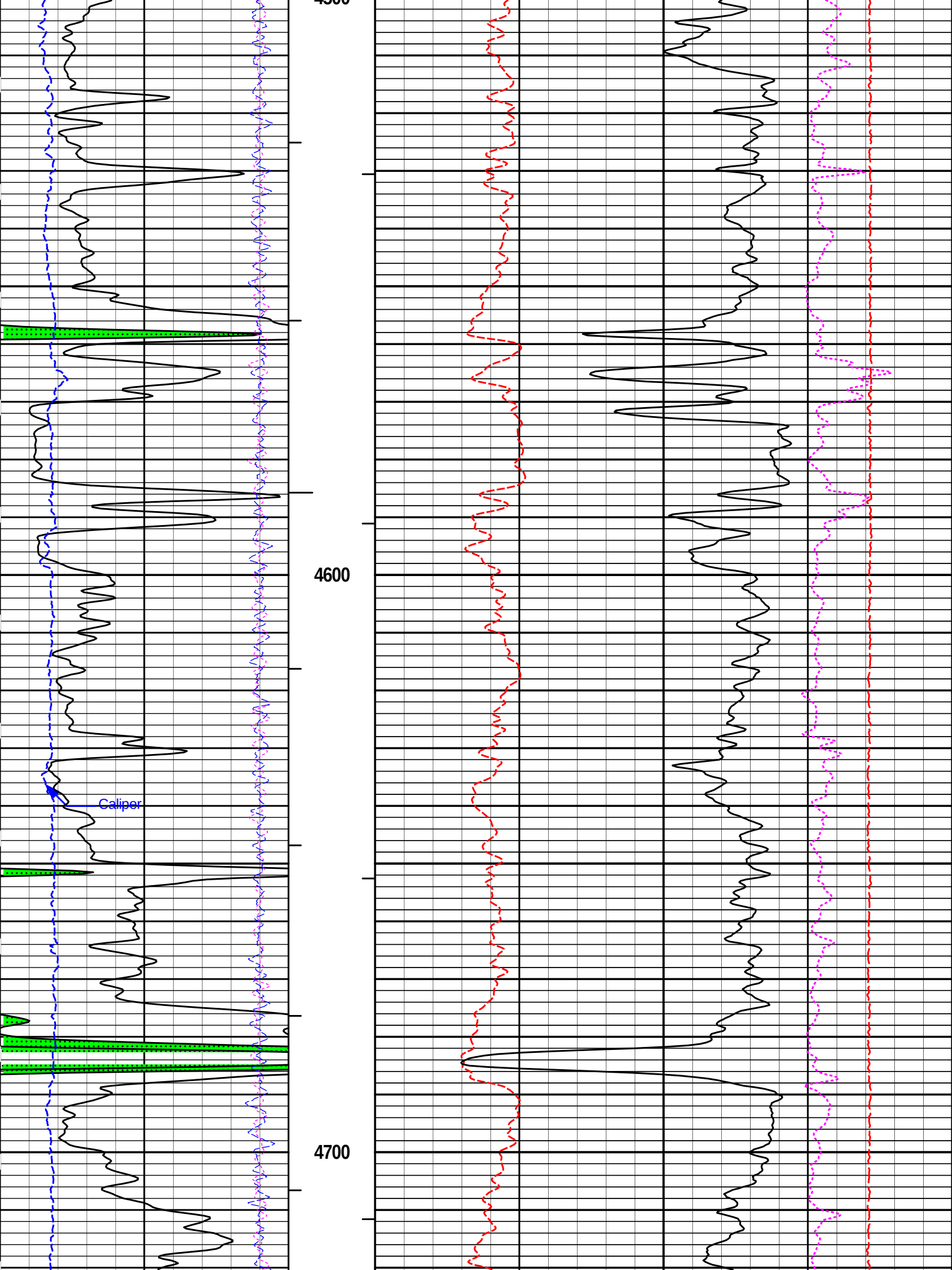
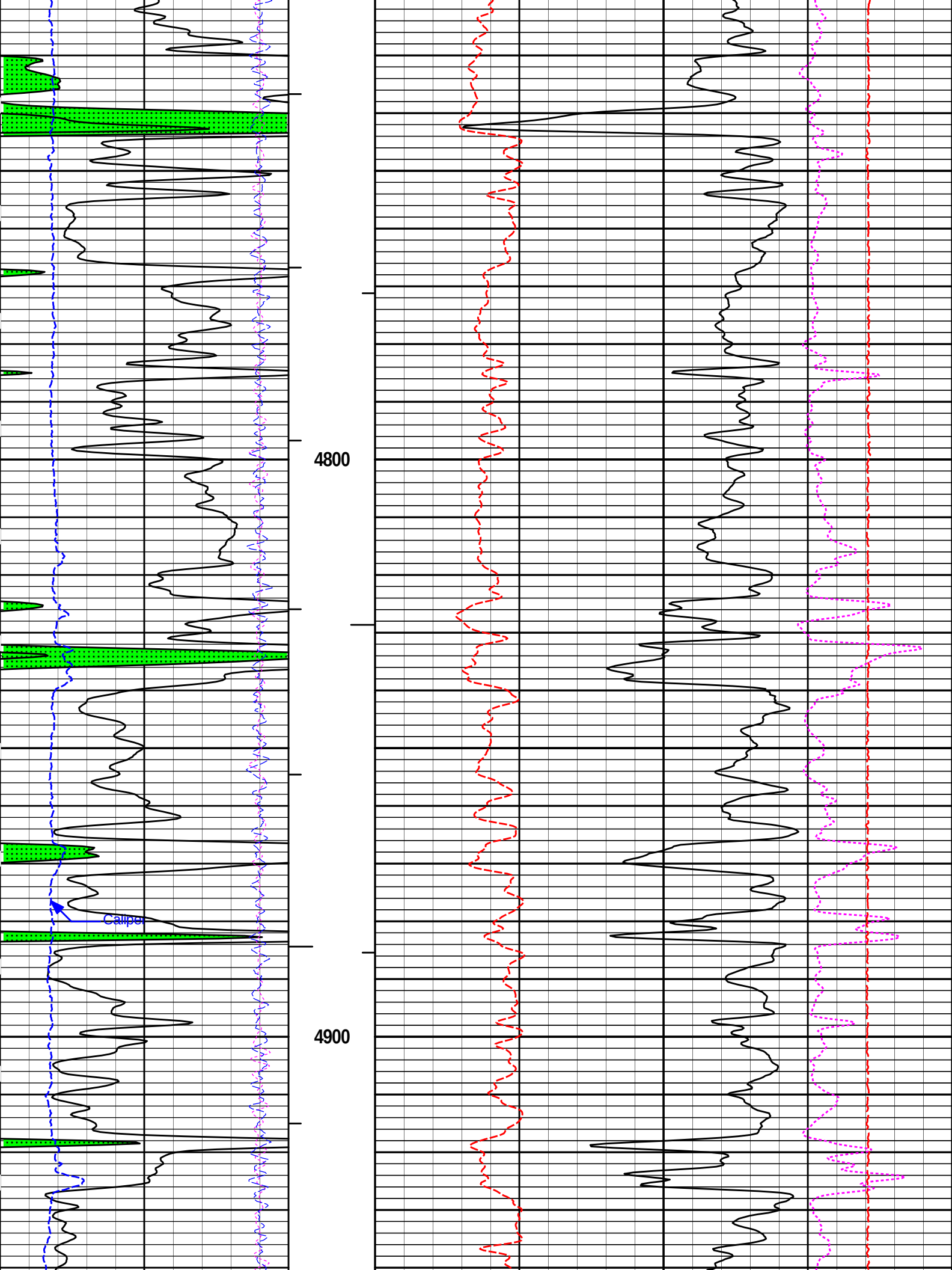

Caliper
3700
3800


3900
4000
Caliper


4100
4200
Caliper


4300
4400
4500
Caliper


4600
4700
Caliper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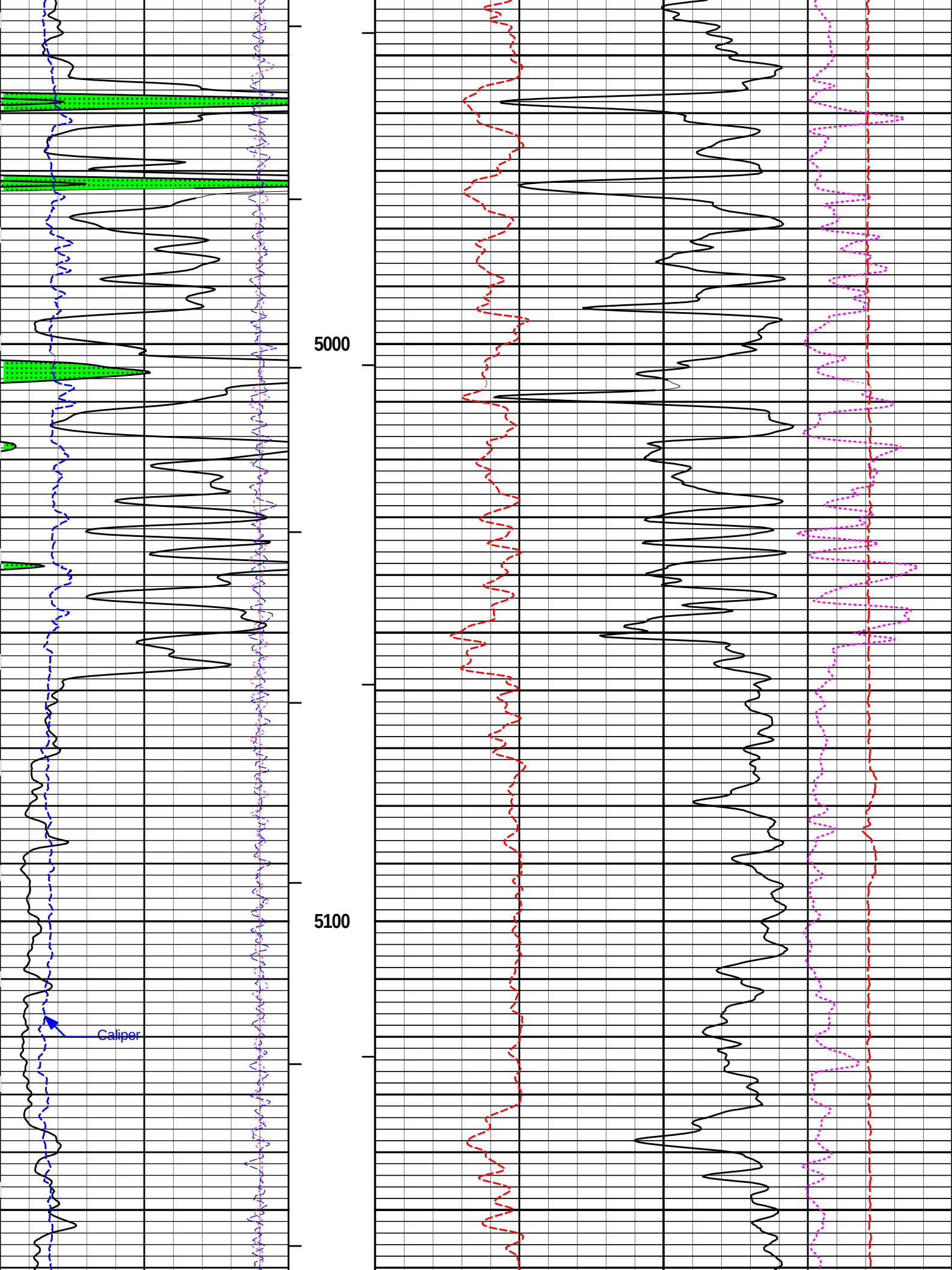
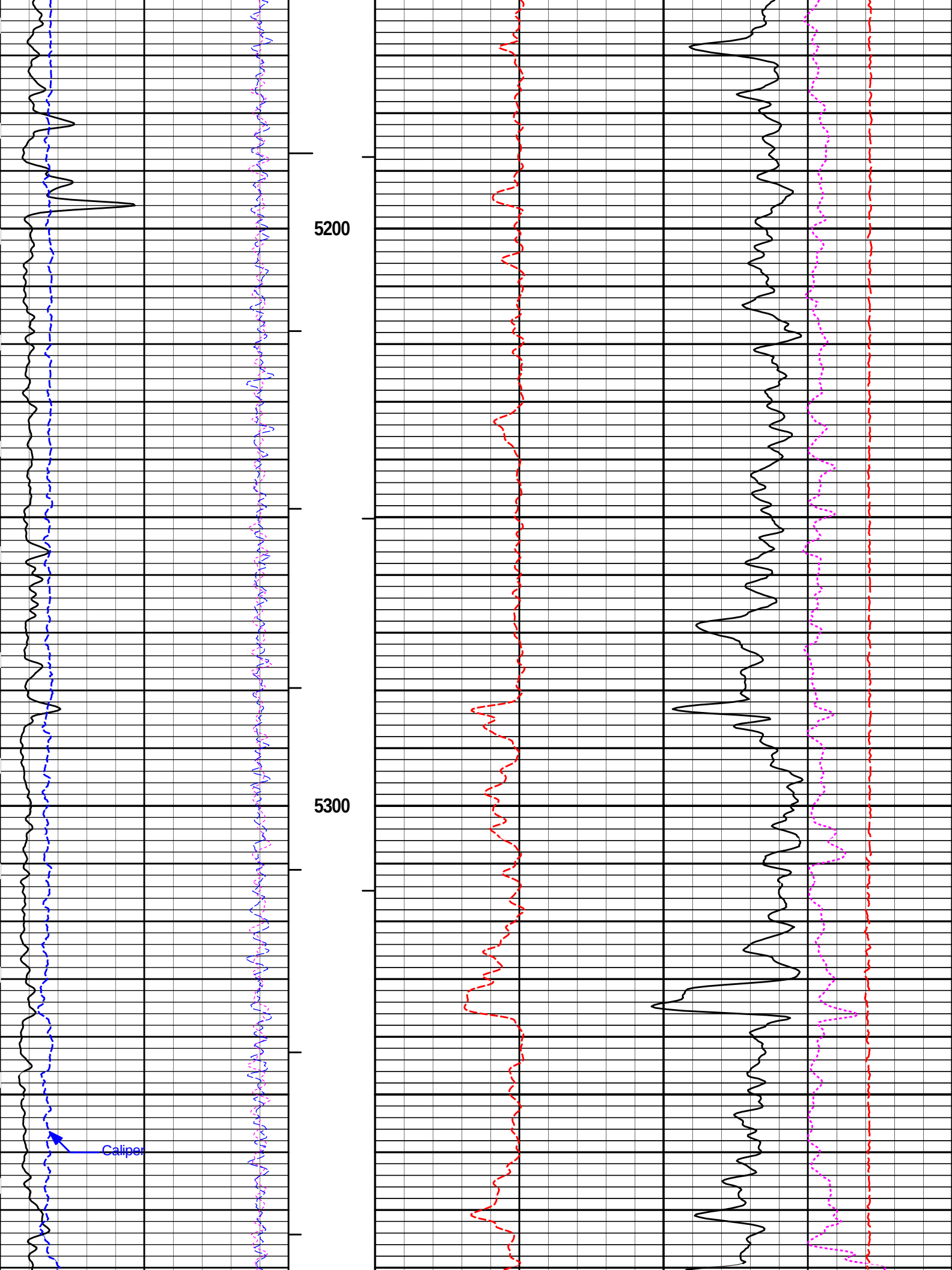
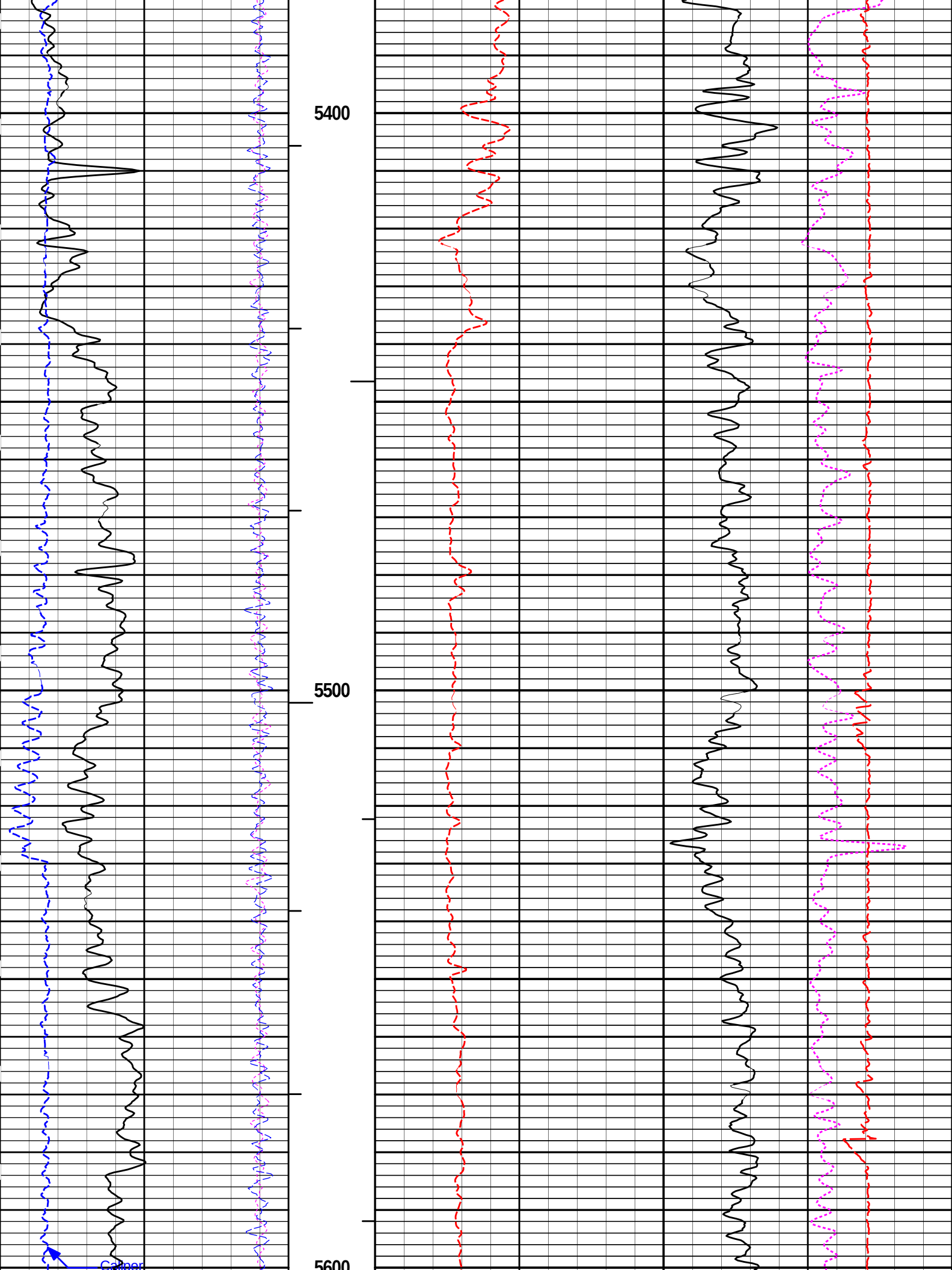
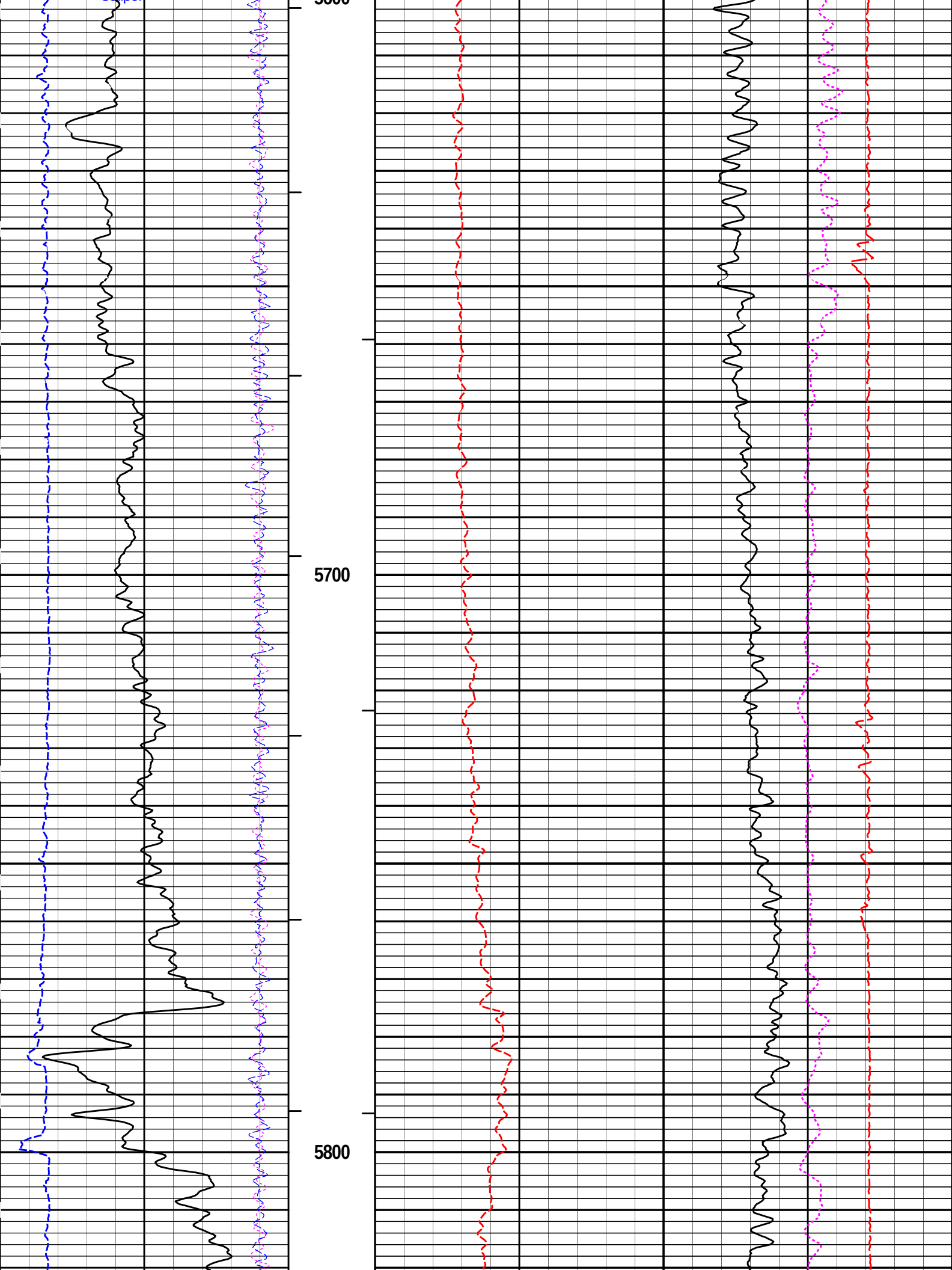
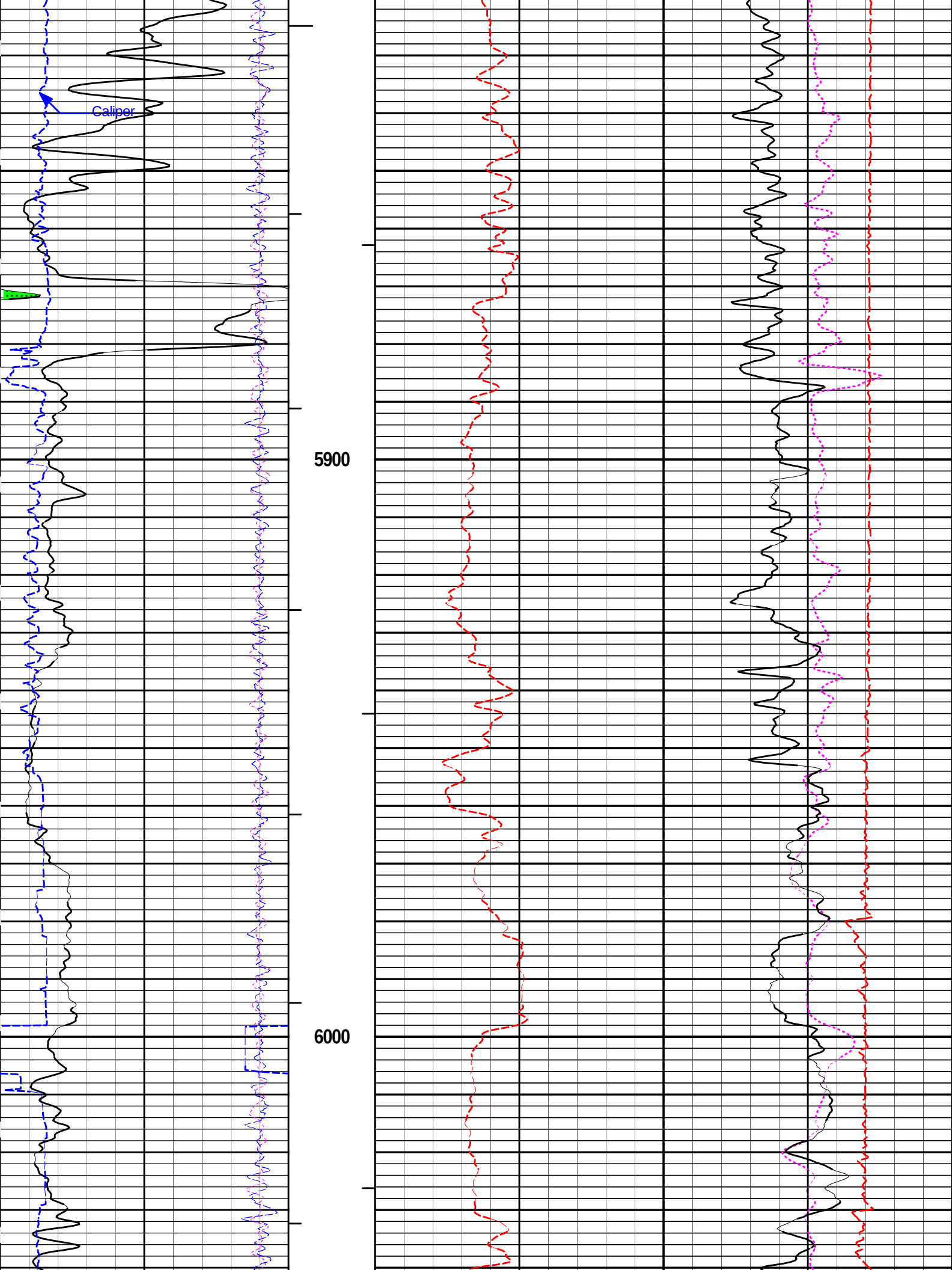
4900
Caliper

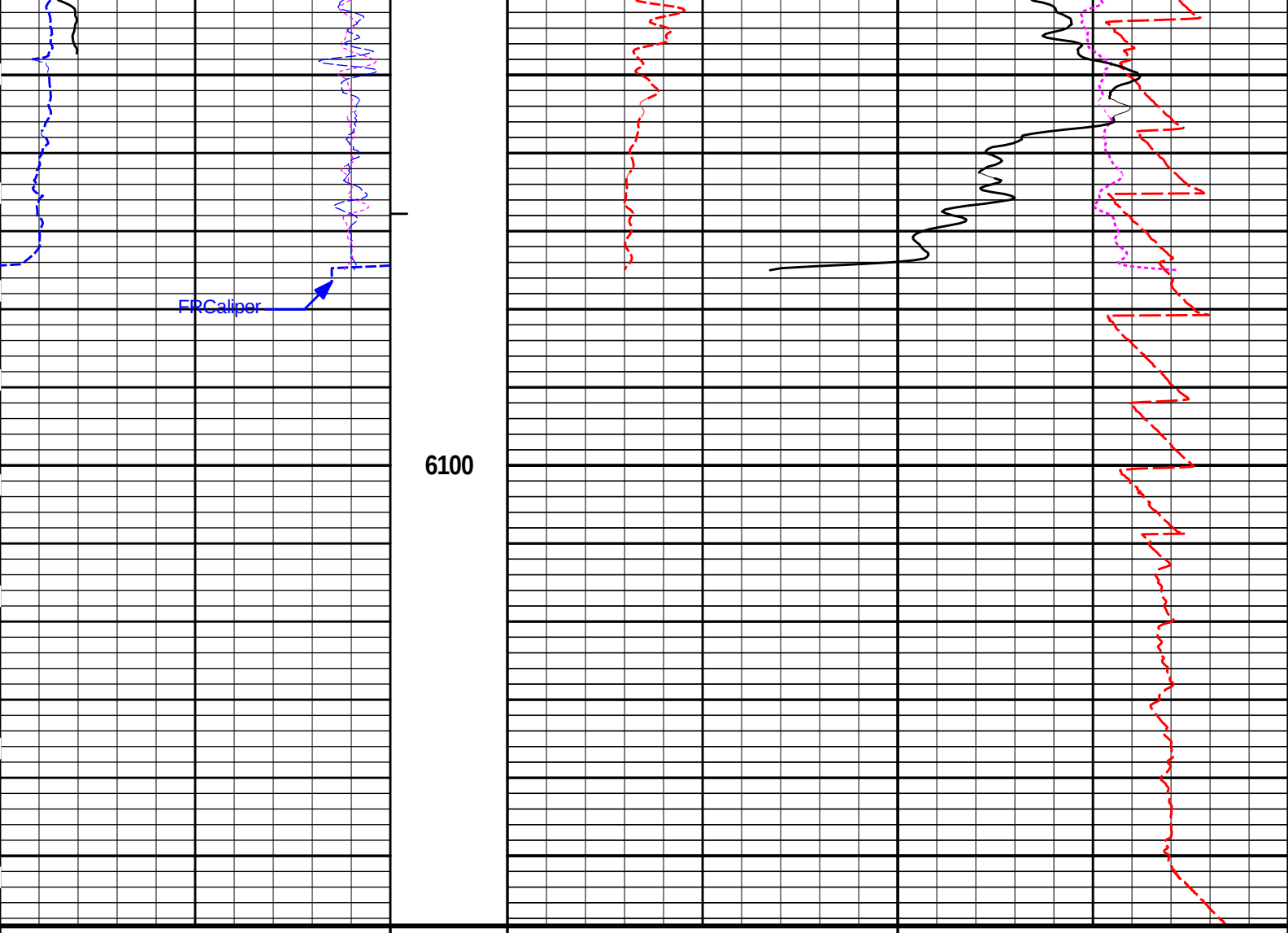

5000
5100
Caliper


5200
5300
Caliper


5400
5500
5600
Caliper


5700
5800


Caliper
5900
6000



6 Caliper 16 inches	MD 1 : 240 ft	0 Pe 10 / -0.25 DensityCorr 0.25 g/cc
-18 NearQuality 2	AHV ft3	15K Tension 0 pounds
18 FarQuality -2	BHV ft3	2 Bulk Density 3 g/cc
0 Gamma Ray 150 api		
SHALE		

HALLIBURTON

Plot Time: 27-Feb-14 15:23:19
Plot Range: 770 ft to 6158.83 ft
Data: BIRD_3319_3-6\Well Based\CASING\
Plot File: \\-LOCAL-\BIRD_3319_3-6\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-BN\PORO\BULKD_5_MAIN_LIB

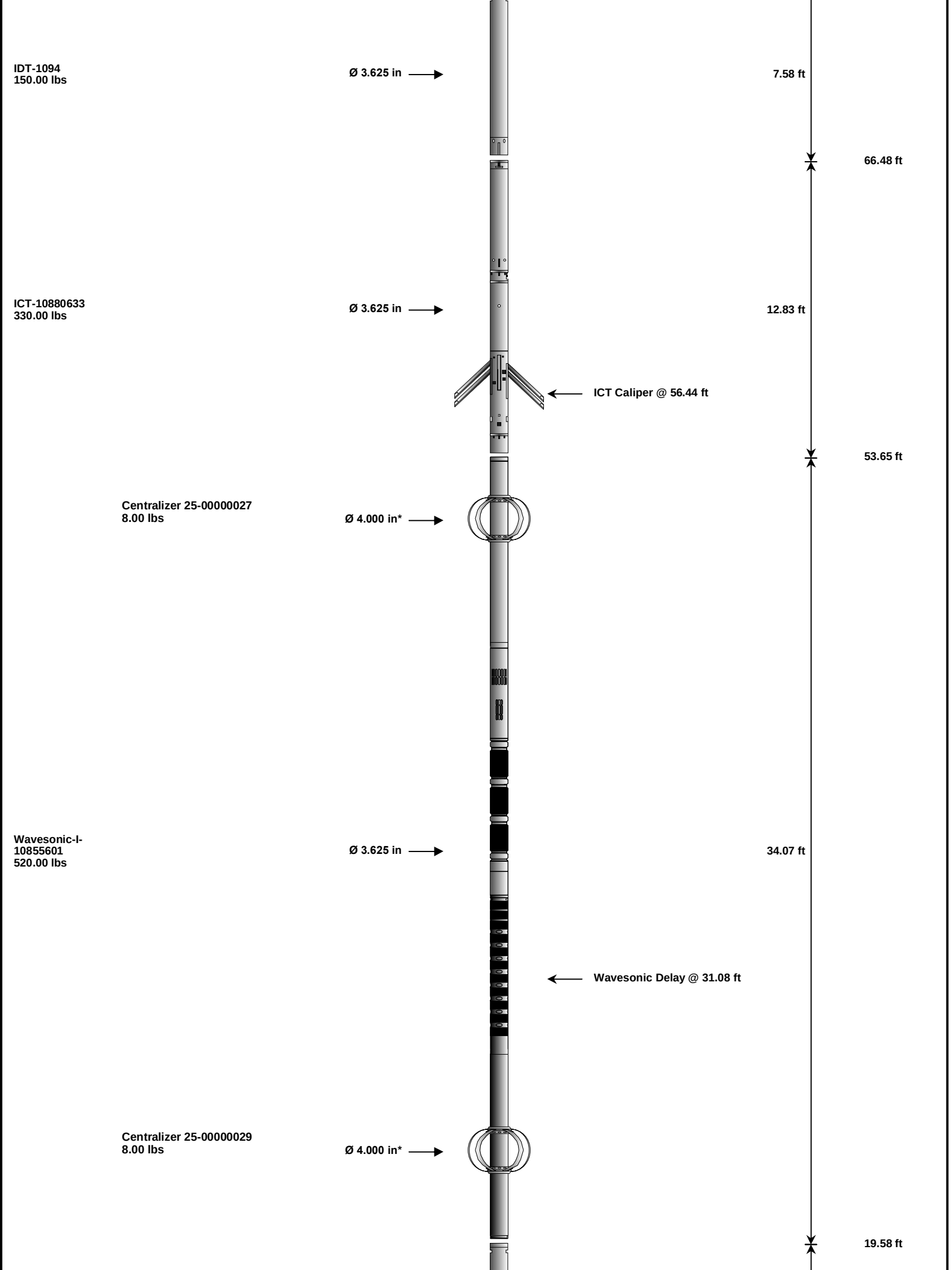
5 INCH MAIN LOG

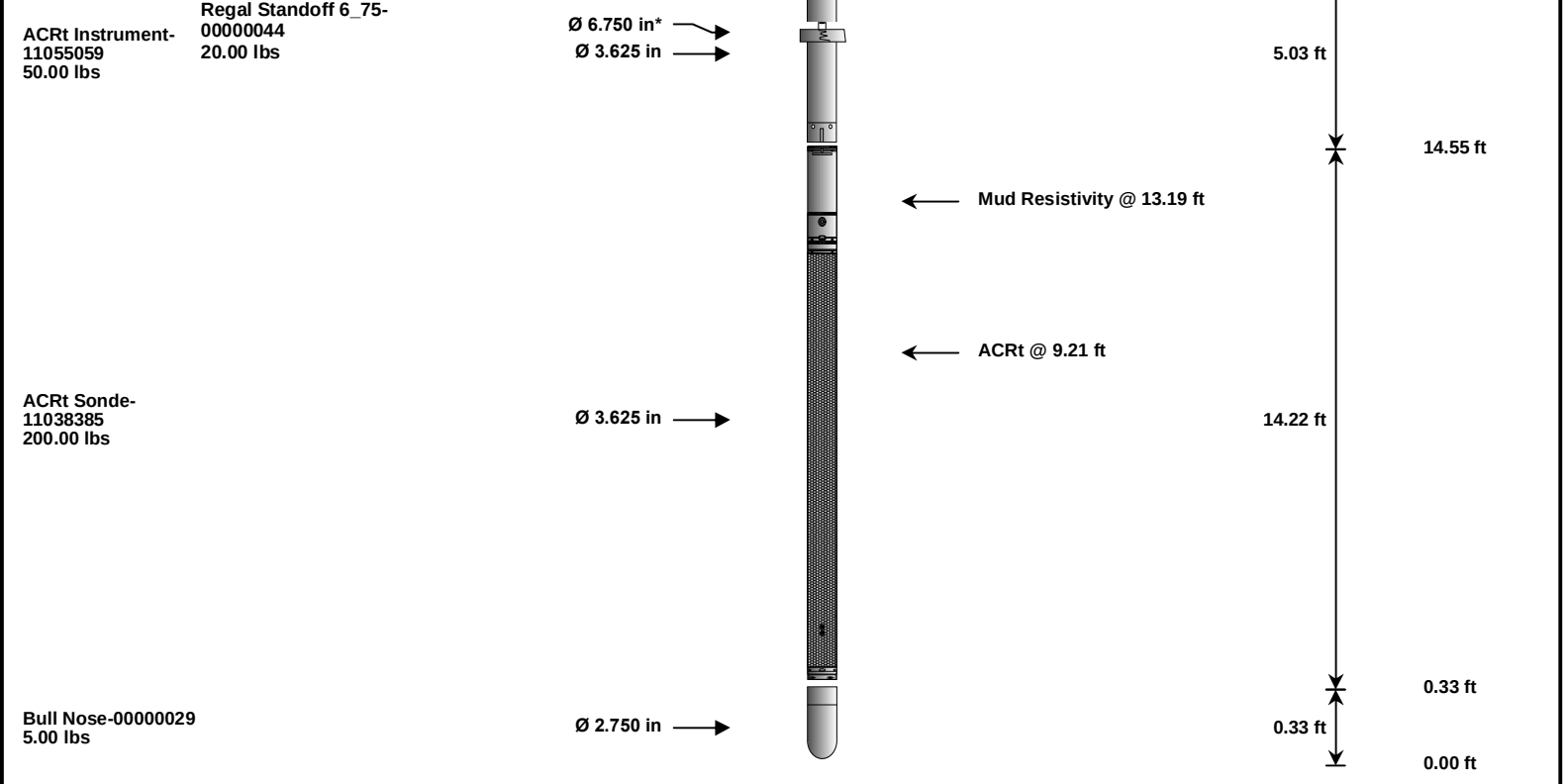
HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated

Description	OD	Diagram	Sensors @ Delays	Length	Length
					126.91 ft
RWCH-12156658 135.00 lbs	Ø 3.625 in		Load Cell @ 123.23 ft BH Temperature @ 122.66 ft	6.25 ft	
					120.66 ft
SP Sub-11441455 60.00 lbs	Ø 3.625 in		SP @ 118.88 ft	3.74 ft	
					116.92 ft
GTET-11048627 165.00 lbs	Ø 3.625 in		GammaRay @ 110.86 ft	8.52 ft	
					108.40 ft
CSNG-11830417 114.00 lbs	Ø 3.625 in		CSNG @ 102.78 ft	8.17 ft	
					100.24 ft
DSNT-11019643 174.00 lbs	Ø 5.000 in* Ø 3.625 in		DSN Far @ 93.30 ft DSN Near @ 92.55 ft	9.69 ft	
DSN Decentralizer-11019643 6.60 lbs					
					90.55 ft
SDLT-10950489 360.00 lbs	Ø 4.500 in		Microlog @ 82.74 ft SDL Caliper @ 82.55 ft SDL @ 82.54 ft	10.81 ft	
SDLT Pad-10844781 65.00 lbs					
Microlog Pad-10950489 8.00 lbs	Ø 4.750 in* Ø 4.750 in*				
					79.74 ft
IQ Flex-00000696 140.00 lbs	Ø 3.625 in			5.67 ft	
					74.07 ft


IDT-1094
150.00 lbs
Ø 3.625 in
7.58 ft
66.48 ft
ICT-10880633
330.00 lbs
Ø 3.625 in
12.83 ft
ICT Caliper @ 56.44 ft
53.65 ft
Centralizer 25-00000027
8.00 lbs
Ø 4.000 in*
Wavesonic-I-
10855601
520.00 lbs
Ø 3.625 in
34.07 ft
Wavesonic Delay @ 31.08 ft
Centralizer 25-00000029
8.00 lbs
Ø 4.000 in*
19.58 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	12156658	135.00	6.25		120.66	300.00
SP	SP Sub	11441455	60.00	3.74		116.92	300.00
GTET	Gamma Telemetry Tool	11048627	165.00	8.52		108.40	60.00
CSNG	Compensated Spectral Natural Gamma	11830417	114.00	8.17		100.24	15.00
DSNT	Dual Spaced Neutron	11019643	174.00	9.69		90.55	60.00
DCNT	DSN Decentralizer	11019643	6.60	5.13	*	93.88	300.00
SDLT	Spectral Density Tool	10950489	360.00	10.81		79.74	60.00
SDLP	Density Insite Pad	10844781	65.00	2.55	*	81.95	60.00
MICP	Microlog Pad	10950489	8.00	1.00	*	82.24	60.00
IQF	IQ Flex tool	00000696	140.00	5.67		74.07	300.00
IDT	Insite Directional Tool	1094	150.00	7.58		66.48	30.00
ICT	Six Independent Arm Caliper	10880633	330.00	12.83		53.65	30.00
WSTT	WaveSonic Insite	10855601	520.00	34.07		19.58	30.00
OBCEN	Centralizer - 25 in. Overbody	00000029	8.00	2.08	*	22.56	300.00
OBCEN	Centralizer - 25 in. Overbody	00000027	8.00	2.08	*	49.92	300.00
ACRt	Array Compensated True Resistivity Instrument Section	11055059	50.00	5.03		14.55	300.00
RSOF	Regal Standoff 6.75in	00000044	20.00	0.52	*	17.30	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11038385	200.00	14.22		0.33	300.00
BLNS	Bull Nose	00000029	5.00	0.33		0.00	300.00
Total			**2,518.60**	**126.91**			

* Not included in Total Length and Length Accumulation.

Data: BIRD_3319_3-6\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-BN\IDLE **Date: 27-Feb-14 08:59:13**

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CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11048627**	**Reference Calibration Date:**	**16-Dec-13 10:43:48**
Engineer:	**THOMAS HYDE**	**Calibration Date:**	**06-Feb-14 08:33:07**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB146

Calibrator API Reference:365.00 api

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Measurement	Measured	Calibrated	Units
Background	50.3	51.0	api
Background + Calibrator	316.2	320.7	api
Calibrator	265.9	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11048627 **Reference Calibration Date:** 06-Feb-14 08:33:07

Engineer: J. BOLLOM **Calibration Date:** 27-Feb-14 03:11:50

Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Field Verification	Shop	Field	Units
Background	51.0	56.4	api
Background + Calibrator	320.7	326.6	api
Calibrator	269.6	270.3	api

Shop	Field	Difference	Tolerance
269.6	270.3	-0.7	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11019643 **Reference Calibration Date:** 19-Feb-14 18:58:49

Engineer: SHELDON INGERSOLL **Calibration Date:** 19-Feb-14 19:13:33

Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Logging Source S/N: 696

Tank Serial Number: LIBERAL_NEUTRON

Reference value assigned to Tank: 51.680

Snow Block S/N: 696

Calibration Tank Water Temperature: 68 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.952	0.954	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2106	0.2110	0.0004	+/- 0.0020
Calibrated Ratio:	9.71	9.73	0.013	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0687	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:	**DSNT - 11019643**	**Reference Calibration Date:**	**19-Feb-14 19:13:33**
Engineer:	**J. BOLLOM**	**Calibration Date:**	**27-Feb-14 03:40:46**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**

Logging Source S/N: 696

Snow Block S/N: 696

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0687	0.0706	0.0018	+/- 0.0150

PASS/FAIL SUMMARY

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - 10950489**	**Reference Calibration Date:**	**23-Feb-14 07:42:23**
Engineer:	**SHELDON INGERSOLL**	**Calibration Date:**	**23-Feb-14 07:46:38**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11019643**		

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-3137.93	-2412.97	-7000.00 - -1000.00
Pad Gain	0.0004500	0.0004118	0.000200 - 0.000600
Arm Offset	-1285.43	-1980.69	-5000.00 - 3000.00
Arm Gain	0.0005509	0.0005656	0.000300 - 0.000700
Arm Power	-0.000006694	-0.000007877	-0.000010000 - 0.000010000

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Tool Diameter: 4.50 in

CALIBRATION RINGS

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	1.86	2.00	0.14	+/- 0.20
Medium Ring (in)	3.77	3.75	-0.02	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.48	6.50	0.02	+/- 0.20
Medium Ring (in)	8.19	8.25	0.06	+/- 0.20
Large Ring (in)	15.00	15.00	0.00	+/- 0.20

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed

SDLT CALIPER FIELD CALIBRATION

Tool Name:	**SDLT - 10950489**	**Reference Calibration Date:**	**23-Feb-14 07:46:38**
Engineer:	**J. BOLLOM**	**Calibration Date:**	**27-Feb-14 03:15:10**
Software Version:	**WL INSITE R3.8.4 (Build 5)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.80	0.05	+/- 0.10
Ring Diameter	8.25	8.35	0.10	+/- 0.15

PASS/FAIL SUMMARY	
Pad Extension Check:	Passed
Diameter Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 10844781 **Reference Calibration Date:** 10-Jan-14 10:59:42

Engineer: SHELDON INGERSOLL **Calibration Date:** 19-Feb-14 16:58:18

Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Logging Source S/N: 5168GW

Aluminum Block S/N: LIBERAL Density: 2.598g/cc Pe: 3.170

Magnesium Block S/N: LIBERAL Density: 1.684g/cc Pe: 2.598

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0056	1.0376	0.90 - 1.10
Near Dens Gain	1.0041	1.0266	0.90 - 1.10
Near Peak Gain	0.9928	1.0296	0.90 - 1.10
Near Lith Gain	0.9569	1.0081	0.90 - 1.10
Far Bar Gain	1.0128	1.0082	0.90 - 1.10
Far Dens Gain	1.0002	0.9990	0.90 - 1.10
Far Peak Gain	0.9941	0.9959	0.90 - 1.10
Far Lith Gain	0.9700	0.9731	0.90 - 1.10
Near Bar Offset	0.1618	-0.1310	NONE
Near Dens Offset	0.1586	-0.0368	NONE
Near Peak Offset	0.2484	-0.0519	NONE
Near Lith Offset	0.5371	0.1192	NONE
Far Bar Offset	0.0257	0.0627	NONE
Far Dens Offset	0.1239	0.1313	NONE
Far Peak Offset	0.1325	0.1101	NONE
Far Lith Offset	0.2753	0.2407	NONE
Near Bar Background	793.46	787.16	700 - 1450
Near Dens Background	257.81	258.09	230 - 480
Near Peak Background	111.90	112.39	100 - 210
Near Lith Background	139.80	140.27	125 - 260
Far Bar Background	513.43	513.16	450 - 900
Far Dens Background	202.49	201.94	175 - 345
Far Peak Background	80.96	80.35	70 - 140
Far Lith Background	84.12	83.13	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.674	1.684	0.010	+/- 0.015
Pe	2.619	2.554	-0.065	+/- 0.150

ALUMINUM				
Density (g/cc)	2.596	2.598	0.002	+/- 0.01500
Pe	3.144	3.122	-0.022	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0025	+/- 0.0110	-0.0018	+/- 0.0140
Magnesium Block	-0.0012	+/- 0.0110	-0.0006	+/- 0.0140
Aluminum Block	-0.0018	+/- 0.0110	0.0003	+/- 0.0140
Resolution	9.52	6.00 - 11.50	8.99	6.00 - 11.50
Internal Verifier(B+D+P+L)	1298	1200 - 2700	879	800 - 1700

PASS/FAIL SUMMARY

Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name: SDLT Pad - 10844781
Reference Calibration Date: 19-Feb-14 16:58:18
Engineer: J. BOLLOM
Calibration Date: 27-Feb-14 03:12:39
Software Version: WL INSITE R3.8.4 (Build 5)
Calibration Version: 1

Pad Temperature: 62.2 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1297.914	1297.769	-0.145	14.586
Far (B+D+P+L) cps	878.578	876.329	-2.249	16.178
Near Resolution	9.52	9.49	-0.030	0.50
Far Resolution	8.99	9.06	0.070	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11048627						
Gamma Ray Calibrator	269.6	270.3	----------	-0.7	+/- 9.00	api
DSNT-11019643						
Snow-Block Porosity	0.0687	0.0706	----------	-0.0019	+/- 0.0150	decp
SDLT-10950489						
Pad Extension	3.75	3.80	----------	-0.05	+/-0.10	in
Ring Diameter	8.25	8.35	----------	-0.10	+/-0.15	in

SDLT Pad-10844781						
Near(B+D+P+L)	1297.914	1297.769	----------	0.145	+/-14.586	cps
Far(B+D+P+L)	878.578	876.329	----------	2.249	+/-16.178	cps

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PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.300	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	6150.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	IDT	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	IDT	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	ICT	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
	Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
	Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	CSNG	CGOK	Process CSNG Data?	Yes	
	CSNG	CENT	Is Tool Centralized?	No	
	CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
	CSNG	BARF	Barite Correction Factor	1.00	
	CSNG	ORDG	Use Fixed Gain	No	
	CSNG	ORDO	Use Fixed Offset	No	
	CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	No	

DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	CLOK	Process Caliper Outputs?	Yes	
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
IDT	WRTI	Survey Writing Interval	30	ft
IDT	SOPT	Smoothing Option	None	
ICT	CLOK	Process Caliper Outputs?	Yes	
ICT	DARM	Disable Caliper Arm	No	
ICT	ATDS	Arm To Disable	0	
ICT	REPM	Method to replace arm?	Caliper Average	
ICT	ARMV	Diameter to use for disabled arm	0.00	in
ICT	DARM	Disable Second Caliper Arm	No	
ICT	ATDS	Second Arm To Disable	0	
ICT	REPM	Method to replace second arm?	Caliper Average	
ICT	ARMV	Diameter to use for second disabled arm	0.00	in
ICT	NAVS	Navigation Source Tool	IDT	
ICT	CL1O	Radius 1 Offset	0.0	in
ICT	CL2O	Radius 2 Offset	0.0	in
ICT	CL3O	Radius 3 Offset	0.0	in
ICT	CL4O	Radius 4 Offset	0.0	in
ICT	CL5O	Radius 5 Offset	0.0	in
ICT	CL6O	Radius 6 Offset	0.0	in
ICT	BHVC	Radius type for borehole volume calcuations	Elliptical	
Wavesonic-I	WSOK	Process WSTT?	Yes	
Wavesonic-I	AFIL	Adaptive Filtering?	No	
Wavesonic-I	PINT	Process 1 Sample and Skip	0	
Wavesonic-I	PROM	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
Wavesonic-I	DTSH	Delta -T Shale	100.00	uspf
Wavesonic-I	DTMT	Delta -T Matrix Type	User define	
Wavesonic-I	DTMA	Delta -T Matrix	47.60	uspf
Wavesonic-I	DTFL	Delta -T Fluid	189.00	uspf
Wavesonic-I	RHOM	Matrix Density	2.7100	g/cc
Wavesonic-I	RHOF	Fluid Density	1.0000	g/cc
Wavesonic-I	SMTH	Semblance Threshold	0.25	
Wavesonic-I	VPVS	VPVS Ratio for Porosity	1.40	
Wavesonic-I	APEQ	Acoustic Porosity Equation	Wylie	
Wavesonic-I	NAVS	Navigation Source Tool	IDT	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt Sonde	TPOS	Tool Position	Free Hanging	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm

	ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
	ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
	ACRt Sonde	THQY	Threshold Quality	0.50	
	ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm

BOTTOM

Data: BIRD_3319_3-6\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-BN\001 27-Feb-14 09:55 Dn @643.3f **Date: 27-Feb-14 09:59:19**

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INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	RWCH			
DHTN	DownholeTension	0.00	BLK	0.000
	SP Sub			
PLTC	Plot Control Mask	118.88	NO	
SP	Spontaneous Potential	118.88	BLK	1.250
SPR	Raw Spontaneous Potential	118.88	NO	
SPO	Spontaneous Potential Offset	118.88	NO	
	GTET			
TPUL	Tension Pull	110.86	NO	
GR	Natural Gamma Ray API	110.86	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	110.86	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	110.86	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	CSNG			
TPUL	Tension Pull	102.78	NO	
STAT	Status	102.78	NO	
FRMC	Tool Frame Count	102.78	BLK	0.250
TFRM	Total Frames	102.78	NO	
LSPD	Line Speed	102.78	BLK	0.250
CTIM	Accumulation time for sample	102.78	BLK	0.250
NOIS	Spectral Noise	102.78	BLK	0.250
STAB	Stabilizer Voltage in mv	102.78	BLK	0.250
STBP	Stabilizer 60 KEV Peak	102.78	BLK	0.250
AMER	Americium	102.78	BLK	0.250
FTMP	Flask PCB Temperature	102.78	BLK	0.250
SPEL	Low Energy Spectrum	102.78	BLK	0.250
SPEH	High Energy Spectrum	102.78	BLK	0.250
SSP	Stabilization Energy Spectrum	102.78	BLK	0.250
CSPC	CSNG Lo Hi Spectrum Data	102.78	NO	
	DSNT			
TPUL	Tension Pull	92.45	NO	
RNDS	Near Detector Telemetry Counts	92.55	BLK	1.417
RFDS	Far Detector Telemetry Counts	93.30	TRI	0.583
DNTT	DSN Tool Temperature	92.55	NO	
DSNS	DSN Tool Status	92.45	NO	

ERND	Near Detector Telemetry Counts EVR	92.55	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	93.30	BLK	0.000
ENTM	DSN Tool Temperature EVR	92.55	NO	
	SDLT			
TPUL	Tension Pull	82.55	NO	
PCAL	Pad Caliper	82.55	TRI	0.250
ACAL	Arm Caliper	82.55	TRI	0.250
	IDT			
TPUL	Tension Pull	67.48	NO	
ACCX	Accelerometer X	67.48	NO	
ACCY	Accelerometer Y	67.48	NO	
ACCZ	Accelerometer Z	67.48	NO	
MAGX	magnetometer x with unit	67.48	NO	
MAGY	Magnetometer Y with unit	67.48	NO	
MAGZ	magnetometer z with unit	67.48	NO	
IAMP	Accelerometer Temperature	67.48	NO	
MTMP	Magnetometer Temperature	67.48	NO	
	ICT			
TPUL	Tension Pull	56.44	NO	
	Arm Potentiometer excitation V	53.65	NO	
	Caliper 1 measurement	56.44	BLK	1.250
	Caliper 2 measurement	56.44	BLK	1.250
	Caliper 3 measurement	56.44	BLK	1.250
	Caliper 4 measurement	56.44	BLK	1.250
	Caliper 5 measurement	56.44	BLK	1.250
	Caliper 6 measurement	56.44	BLK	1.250
	Caliper Global measurement	56.44	BLK	1.250
MOTI	Motor Current	53.65	NO	
MOT1	Motor Voltage Monitor 1	53.65	NO	
STA1	Status word #1	53.65	NO	
STA2	Status word #2	53.65	NO	
PRES	Caliper percentage of total compression of the spring	53.65	NO	
HAZI	Hole Azimuth	56.44	NO	
RB	Relative Bearing	56.44	NO	
AZI1	PAD1 Azimuth	56.44	NO	
DEVI	Inclination	56.44	NO	
	Wavesonic-I			
TPUL	Tension Pull	31.08	NO	
DPSX	Dipole Source X Structurel	19.58	NO	
DPSY	Dipole Source Y Structurel	19.58	NO	
DPSM	Monopole Source Structure	19.58	NO	
WVST	Wavesonic Compressed Data	31.08	NO	
TPUL	Tension Pull	31.08	NO	
XMS1	Wave Sonic Status Word 1	19.58	NO	
XMS2	Wave Sonic Status Word 2	19.58	NO	
XMS1	Wave Sonic XMITStatus Word 1	19.58	NO	
XMS1	Wave Sonic XMITStatus Word 2	19.58	NO	
F1HA	Dipole 1 HV After	19.58	NO	
F1HB	Dipole 1 HV Before	19.58	NO	
F2HA	Dipole 2 HV After	19.58	NO	
F2HB	Dipole 2 HV Before	19.58	NO	
F3HA	Monopole HV After	19.58	NO	

F3HB	Monopole HV Before	19.58	NO
INVT	Input Voltage	19.58	NO
5VOL	5 Volts	19.58	NO
MI5A	Minus 5 Volts Analog	19.58	NO
ITMP	Instrument Temperature	19.58	NO
PL5A	Plus 5 Volts Analog	19.58	NO
5VD	Plus 5 Volts Digital	19.58	NO
TCUR	Tool Current	19.58	NO
SUPV	Supply Voltage	19.58	NO
PRVT	Preregulated voltage	19.58	NO
PRVT	Pre-regulated voltage Xmter	19.58	NO
TEMP	Temperature	19.58	NO
ACQN	Acquisition Number	19.58	NO
XDP	Delay Reference	31.08	NO
MITM	MIT Mode	31.08	NO
VERS	Version	19.58	NO
D1CT	Dipole 1 Compressed Word Count	31.08	NO
D2CT	Dipole 2 Compressed Word Count	31.08	NO
MCNT	Monopole Compressed Word Count	31.08	NO
SEQN	Sequence Number	19.58	NO
FREV	Firmware Revision	19.58	NO
MSMP	Monopole Sample Rate	19.58	NO
MSMP	Dipole Sample Rate	19.58	NO
MFWF	Monopole Firing Waveform	19.58	NO
MFRQ	Monopole Frequency	19.58	NO
MDLY	Monopole Delay	19.58	NO
DXWF	Dipole X Firing Waveform	19.58	NO
XFRQ	Dipole X Frequency	19.58	NO
XDLY	Dipole X Delay	19.58	NO
DYWF	Dipole Y Firing Waveform	19.58	NO
YFRQ	Dipole Y Frequency	19.58	NO
YDLY	Dipole Y Delay	19.58	NO
DPSX	Dipole Source X Structurel	19.58	NO
DPSY	Dipole Source Y Structurel	19.58	NO
DPSM	Monopole Source Structure	19.58	NO
WVST	Wavesonic Compressed Data	31.08	NO
AUTM	Auto Mode	19.58	NO
SONM	tool mode for sonic - 0 for normal or 3 for calibration	19.58	NO
MSL	Monopole Lower Travel Time	31.08	NO
MSH	Monopole Upper Travel Time	31.08	NO
MLFC	Monopole-1 Lower Filter Bandpass Frequency Cut-off	19.58	NO
MUFC	Monopole-1 Upper Filter Bandpass Frequency Cut-off	19.58	NO
DLTT	Dipole Lower Travel Time	19.58	NO
DUTT	Dipole Upper Travel Time	19.58	NO
DLFC	Dipole Lower Filter Bandpass Frequency Cut-off	19.58	NO
DUFC	Dipole Upper Filter Bandpass Frequency Cut-off	19.58	NO
MUTE	WaveSonic Mute/Enable Channels and Sides map	19.58	NO
MUTS	Mute/Enable Sides	19.58	NO
WSRB	Relative Bearing	31.08	NO
WSAZ	WSX Azimuth Pad 1	31.08	NO
TPUL	Tension Pull	31.08	NO
WMP	Summed array of Monopole for SIDES - A,B,C,D	31.08	NO
WXX	Dipole X for SIDES - A-C	31.08	NO
WYY	Dipole Y for SIDES - B-D	31.08	NO
WXY	Dipole X for SIDES - B-D	31.08	NO

WYX	Dipole Y for SIDES - A-C	31.08	NO
TPUL	Tension Pull	31.08	NO
WMA	Monopole Waveform Side A - Channel 1 to Channel 8 Receivers	31.08	NO
WMB	Monopole Waveform Side B - Channel 1 to Channel 8 Receivers	31.08	NO
WMC	Monopole Waveform Side C - Channel 1 to Channel 8 Receivers	31.08	NO
WMD	Monopole Waveform Side D - Channel 1 to Channel 8 Receivers	31.08	NO
WXA	Dipole X Waveform Side A - Channel 1 to Channel 8 Receivers	31.08	NO
WXB	Dipole X Waveform Side B - Channel 1 to Channel 8 Receivers	31.08	NO
WXC	Dipole X Waveform Side C - Channel 1 to Channel 8 Receivers	31.08	NO
WXD	Dipole X Waveform Side D - Channel 1 to Channel 8 Receivers	31.08	NO
WYA	Dipole Y Waveform Side A - Channel 1 to Channel 8 Receivers	31.08	NO
WYB	Dipole Y Waveform Side B - Channel 1 to Channel 8 Receivers	31.08	NO
WYC	Dipole Y Waveform Side C - Channel 1 to Channel 8 Receivers	31.08	NO
WYD	Dipole Y Waveform Side D - Channel 1 to Channel 8 Receivers	31.08	NO
GAR1	Gain Side A Receiver 1	19.58	NO
GAR2	Gain Side A Receiver 2	19.58	NO
GAR3	Gain Side A Receiver 3	19.58	NO
GAR4	Gain Side A Receiver 4	19.58	NO
GAR5	Gain Side A Receiver 5	19.58	NO
GAR6	Gain Side A Receiver 6	19.58	NO
GAR7	Gain Side A Receiver 7	19.58	NO
GAR8	Gain Side A Receiver 8	19.58	NO
GBR1	Gain Side B Receiver 1	19.58	NO
GBR2	Gain Side B Receiver 2	19.58	NO
GBR3	Gain Side B Receiver 3	19.58	NO
GBR4	Gain Side B Receiver 4	19.58	NO
GBR5	Gain Side B Receiver 5	19.58	NO
GBR6	Gain Side B Receiver 6	19.58	NO
GBR7	Gain Side B Receiver 7	19.58	NO
GBR8	Gain Side B Receiver 8	19.58	NO
GCR1	Gain Side C Receiver 1	19.58	NO
GCR2	Gain Side C Receiver 2	19.58	NO
GCR3	Gain Side C Receiver 3	19.58	NO
GCR4	Gain Side C Receiver 4	19.58	NO
GCR5	Gain Side C Receiver 5	19.58	NO
GCR6	Gain Side C Receiver 6	19.58	NO
GCR7	Gain Side C Receiver 7	19.58	NO
GCR8	Gain Side C Receiver 8	19.58	NO
GDR1	Gain Side D Receiver 1	19.58	NO
GDR2	Gain Side D Receiver 2	19.58	NO
GDR3	Gain Side D Receiver 3	19.58	NO
GDR4	Gain Side D Receiver 4	19.58	NO
GDR5	Gain Side D Receiver 5	19.58	NO
GDR6	Gain Side D Receiver 6	19.58	NO
GDR7	Gain Side D Receiver 7	19.58	NO
GDR8	Gain Side D Receiver 8	19.58	NO

ACRt Sonde

TPUL	Tension Pull	2.73	NO

F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Current Raw 12K X Receiver	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	
TUDV	Upper Temperature Derivative	2.73	NO	
TLDV	Lower Temperature Derivative	2.73	NO	
TRBD	Receiver Board Temperature	2.73	NO	
	Microlog Pad			
TPUL	Tension Pull	82.74	NO	
MINV	Microlog Lateral	82.74	BLK	0.750

MNOR	Microlog Normal	82.74	BLK	0.750

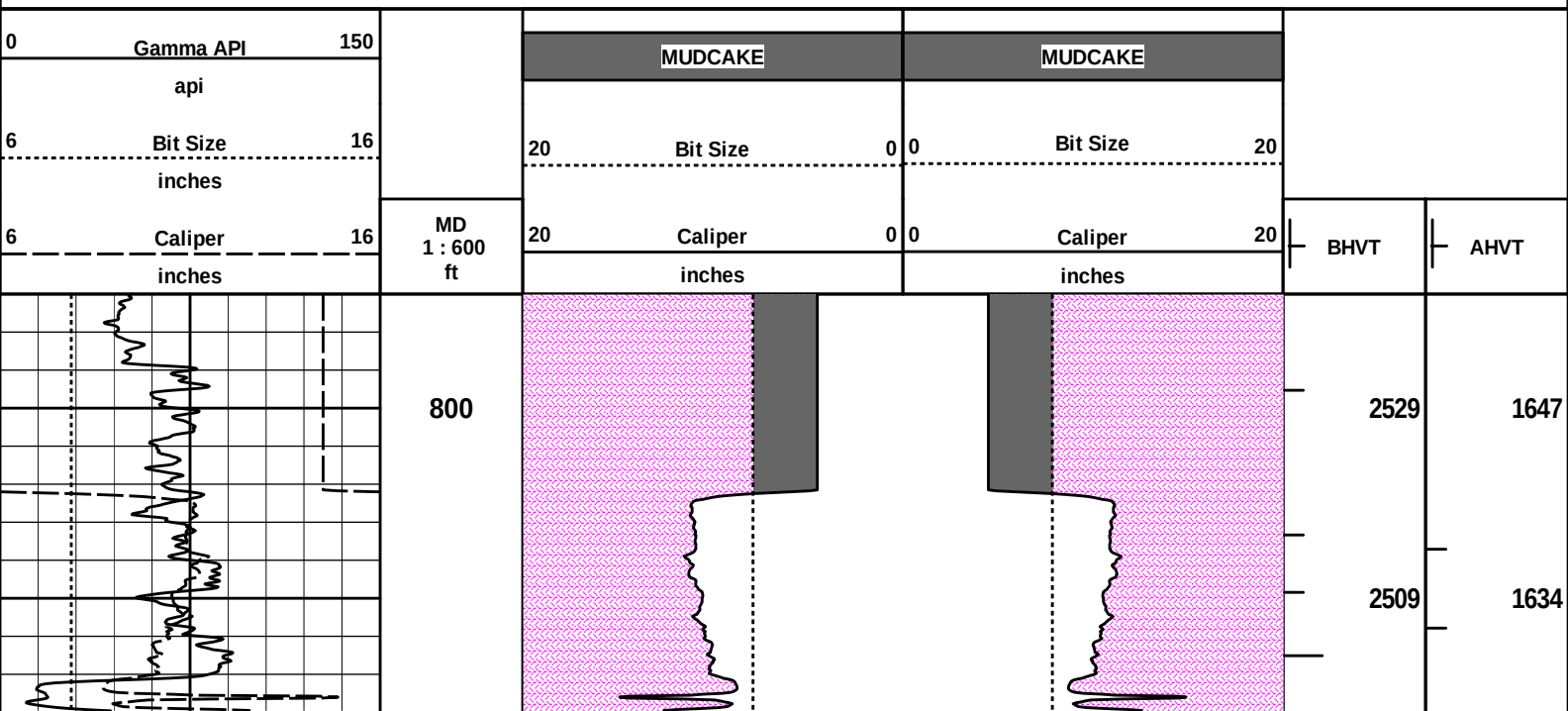
SDLT Pad				
TPUL	Tension Pull	82.54	NO	
NAB	Near Above	82.37	BLK	0.920
NHI	Near Cesium High	82.37	BLK	0.920
NLO	Near Cesium Low	82.37	BLK	0.920
NVA	Near Valley	82.37	BLK	0.920
NBA	Near Barite	82.37	BLK	0.920
NDE	Near Density	82.37	BLK	0.920
NPK	Near Peak	82.37	BLK	0.920
NLI	Near Lithology	82.37	BLK	0.920
NBAU	Near Barite Unfiltered	82.37	BLK	0.250
NLIU	Near Lithology Unfiltered	82.37	BLK	0.250
FAB	Far Above	82.72	BLK	0.250
FHI	Far Cesium High	82.72	BLK	0.250
FLO	Far Cesium Low	82.72	BLK	0.250
FVA	Far Valley	82.72	BLK	0.250
FBA	Far Barite	82.72	BLK	0.250
FDE	Far Density	82.72	BLK	0.250
FPK	Far Peak	82.72	BLK	0.250
FLI	Far Lithology	82.72	BLK	0.250
PTMP	Pad Temperature	82.55	BLK	0.920
NHV	Near Detector High Voltage	81.95	NO	
FHV	Far Detector High Voltage	81.95	NO	
ITMP	Instrument Temperature	81.95	NO	
DDHV	Detector High Voltage	81.95	NO	

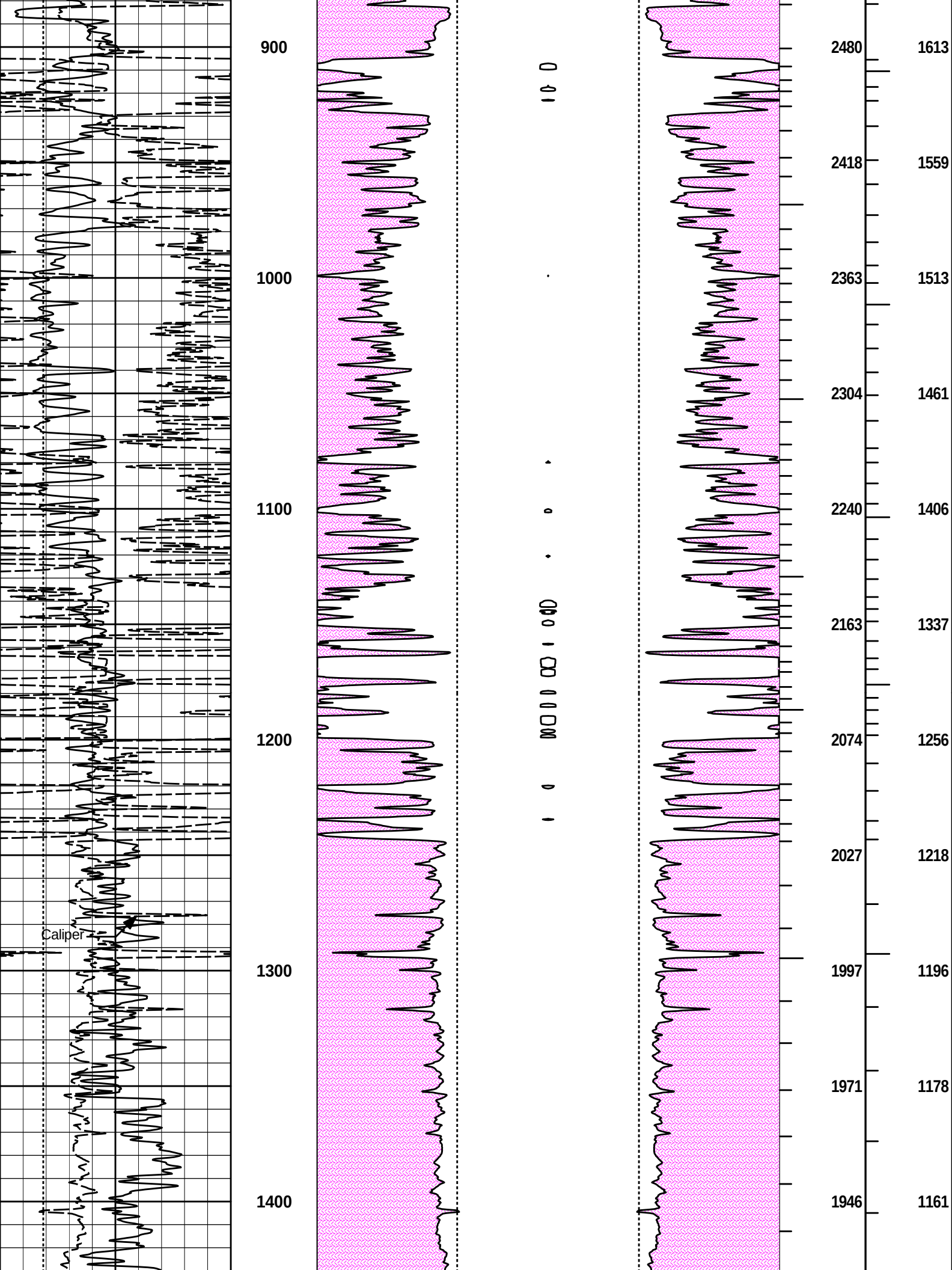
Data: BIRD_3319_3-6\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-BN\001 27-Feb-14 09:55 Dn @643.3f **Date: 27-Feb-14 09:59:50**

HALLIBURTON

Plot Time: 27-Feb-14 15:23:20
Plot Range: 770 ft to 6158.83 ft
Data: BIRD_3319_3-6\Well Based\CASING
Plot File: \\-LOCAL-\BIRD_3319_3-6\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-BN\PORO\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT




900
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1300
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2418
2363
2304
2240
2163
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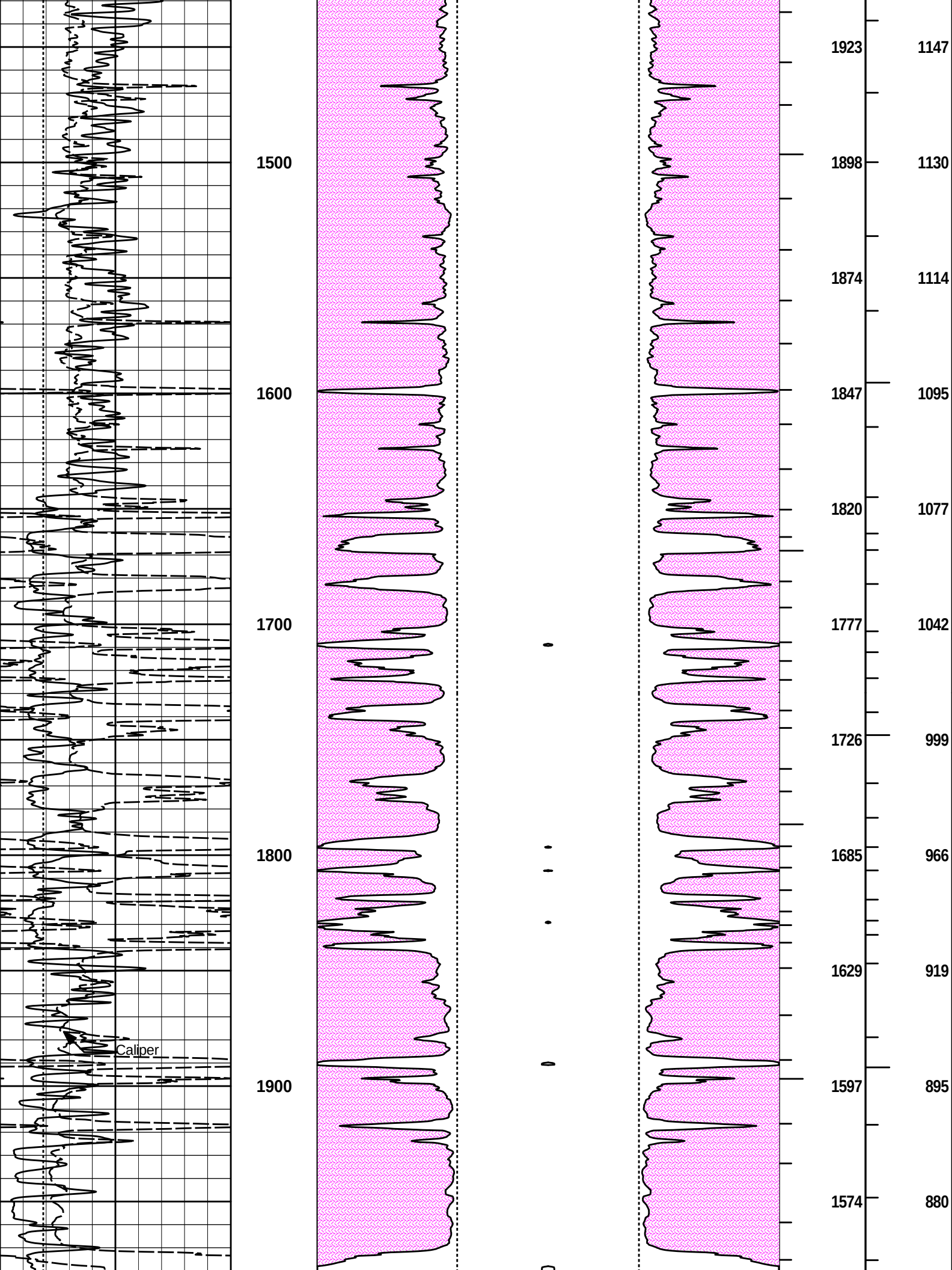
1161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Caliper
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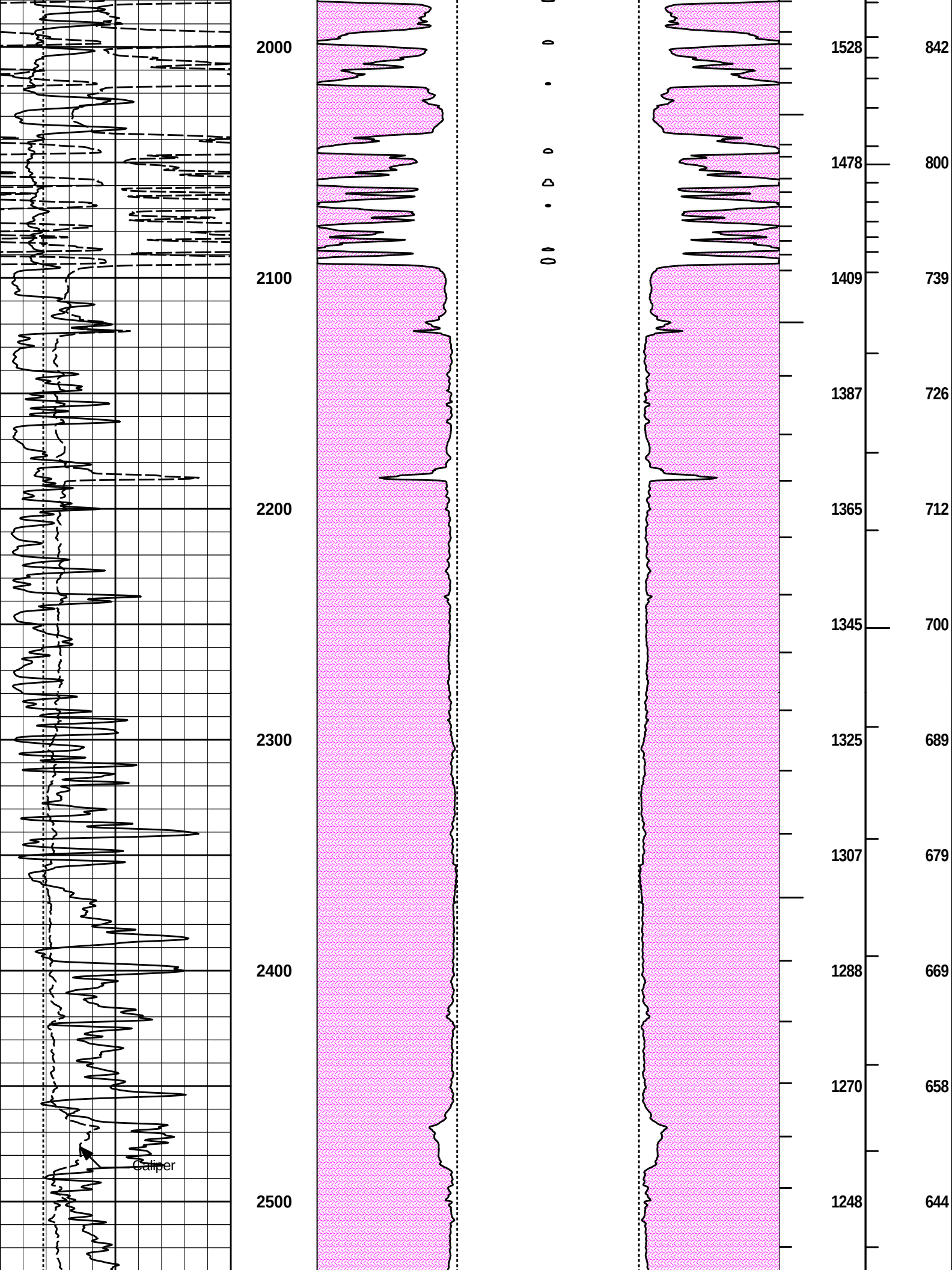
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712
700
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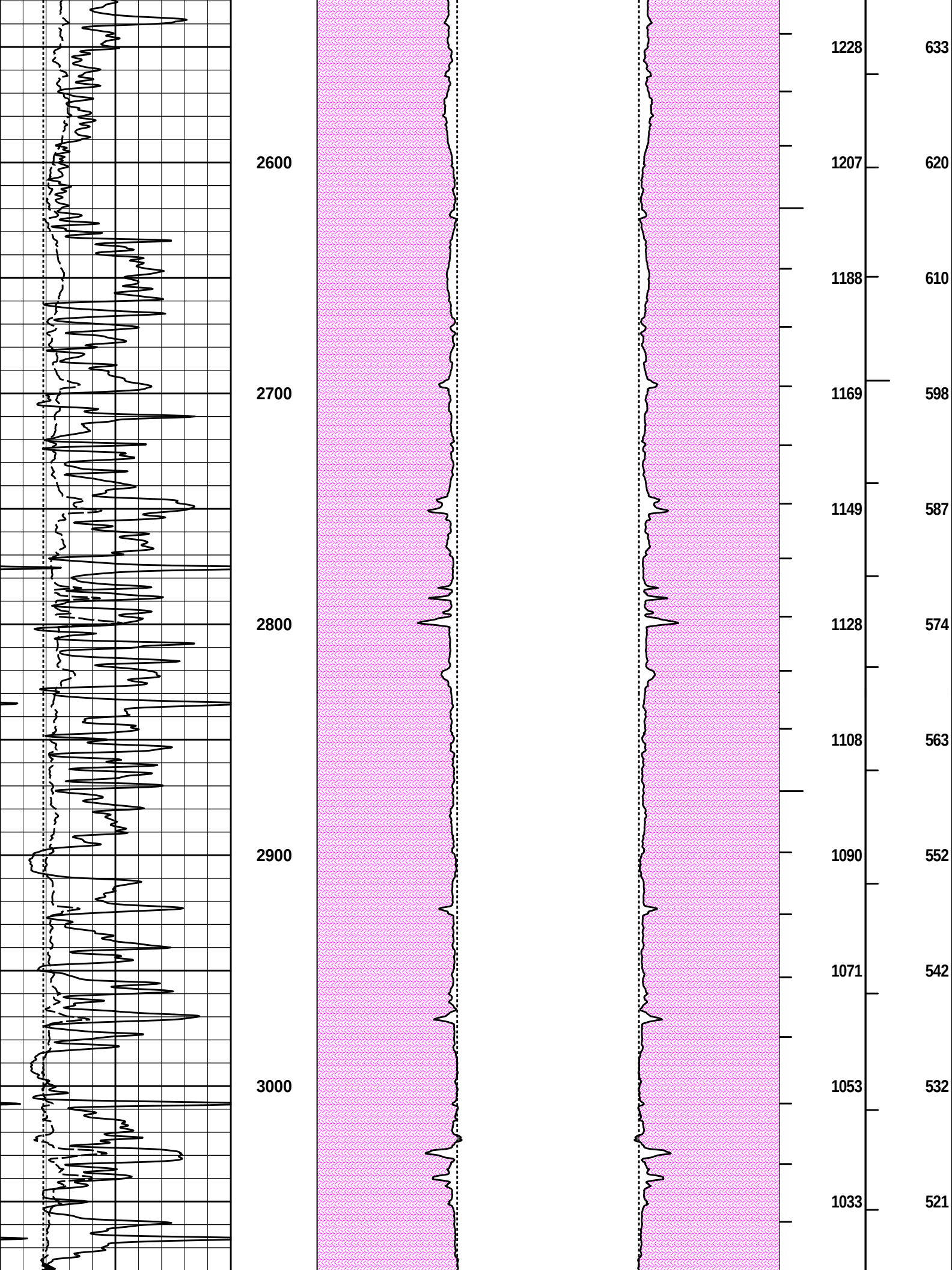
669
658
644
Caliper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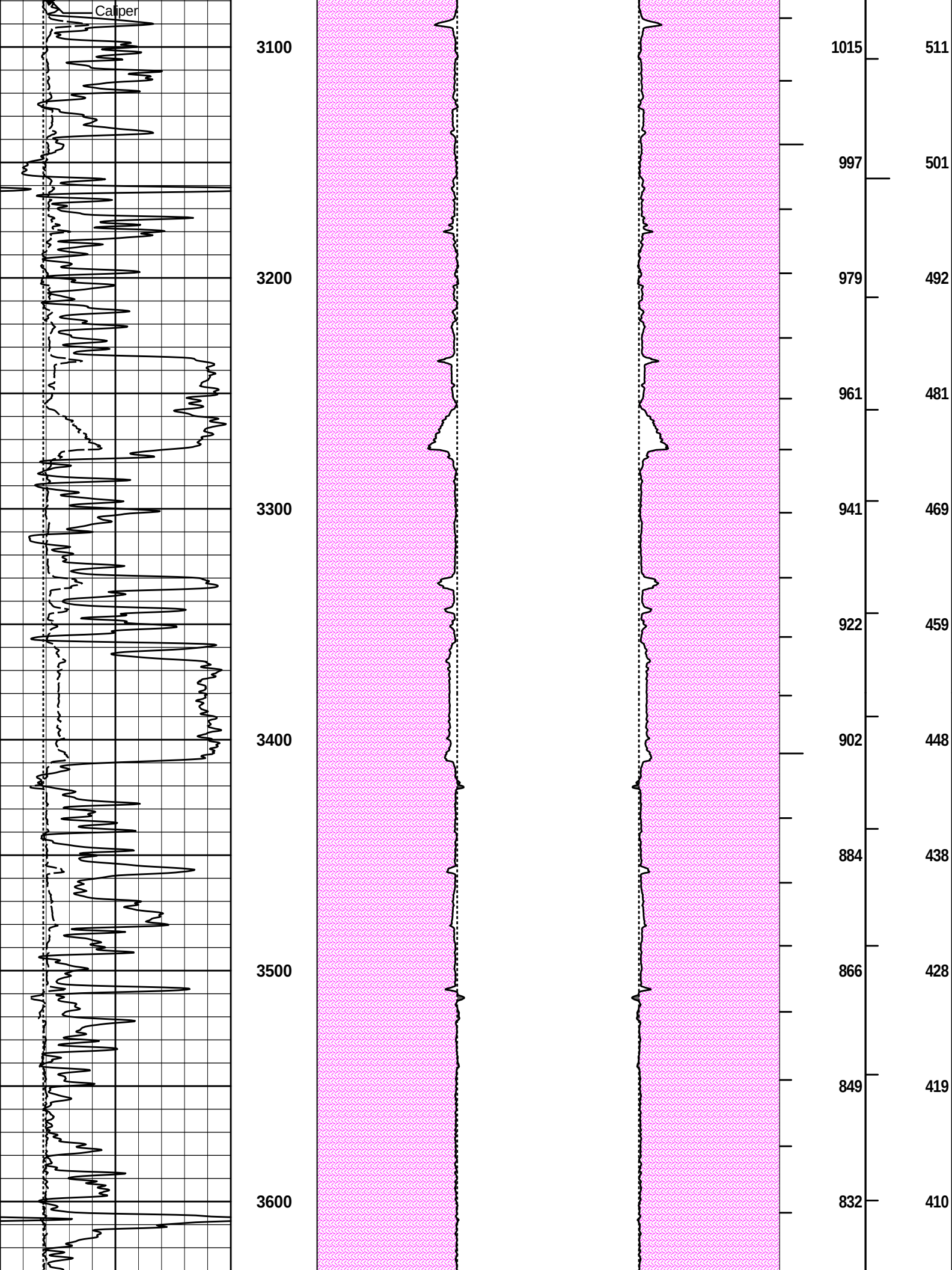
532
521


Caliper
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3200
3300
3400
3500
3600
1015
997
979
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501
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481
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438
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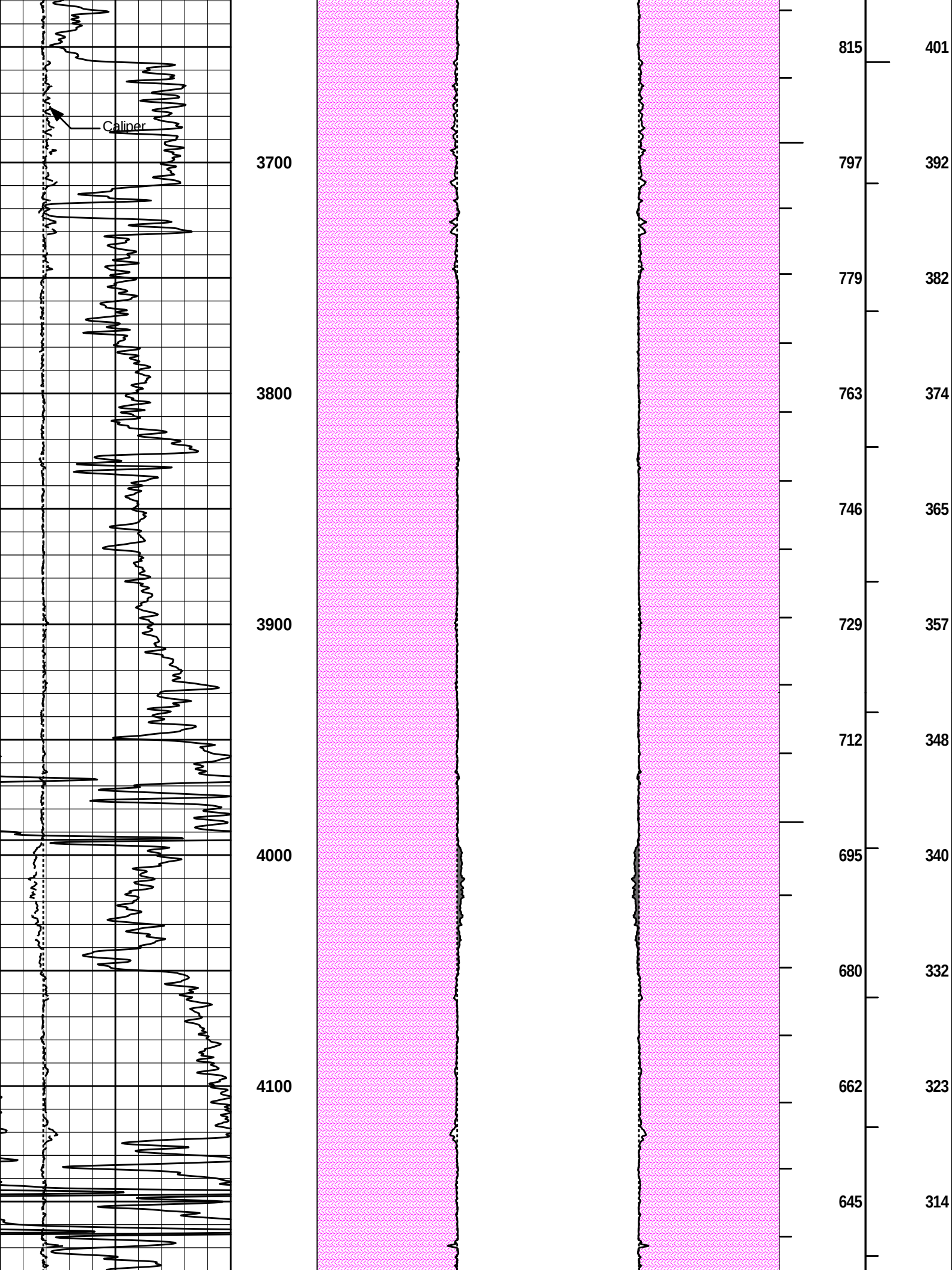
419
410


Caliper
3700
3800
3900
4000
4100
815
797
779
763
746
729
712
695
680
662
645
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392
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374
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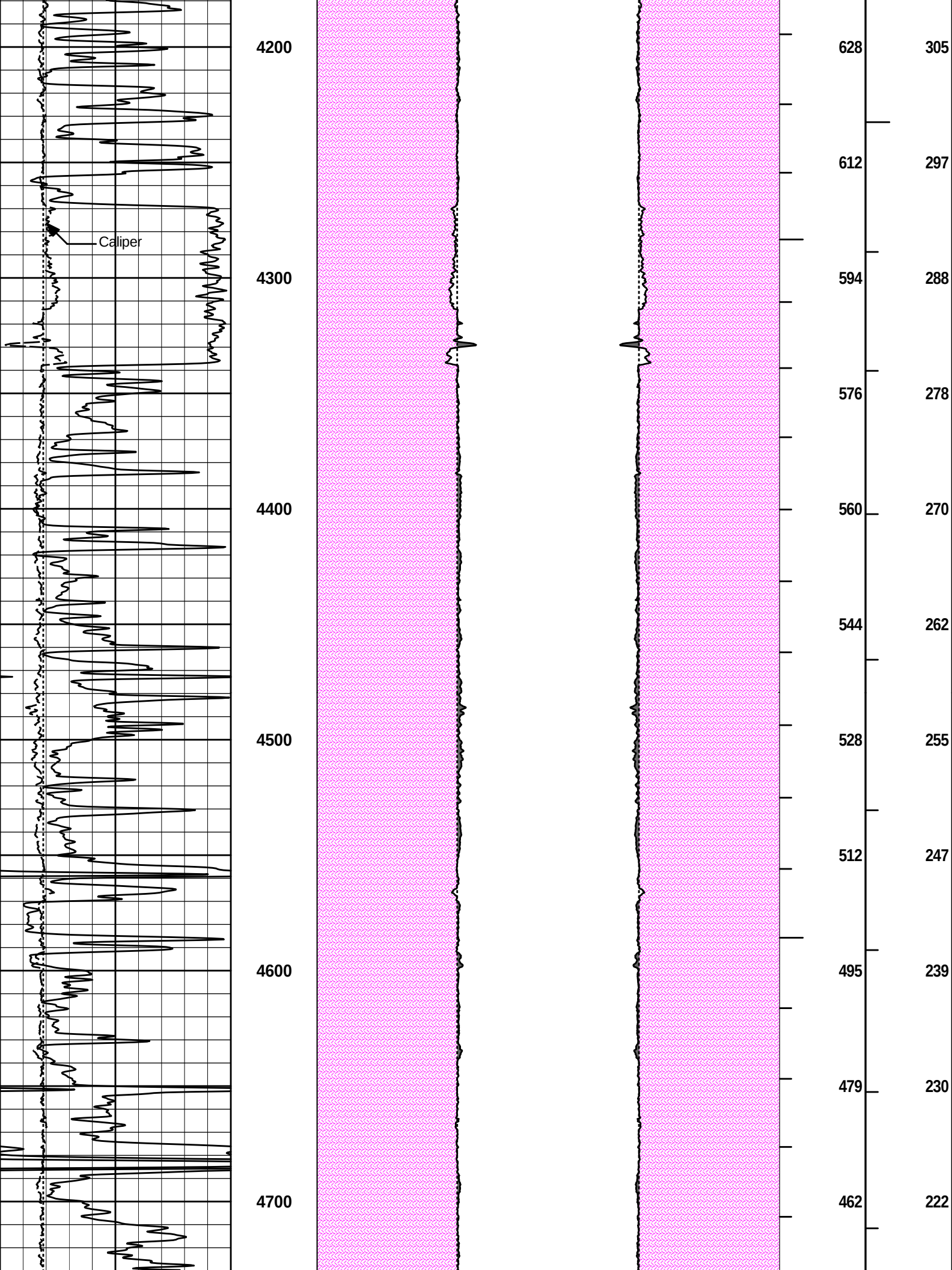
323
314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4300
4400
4500
4600
4700
628
612
594
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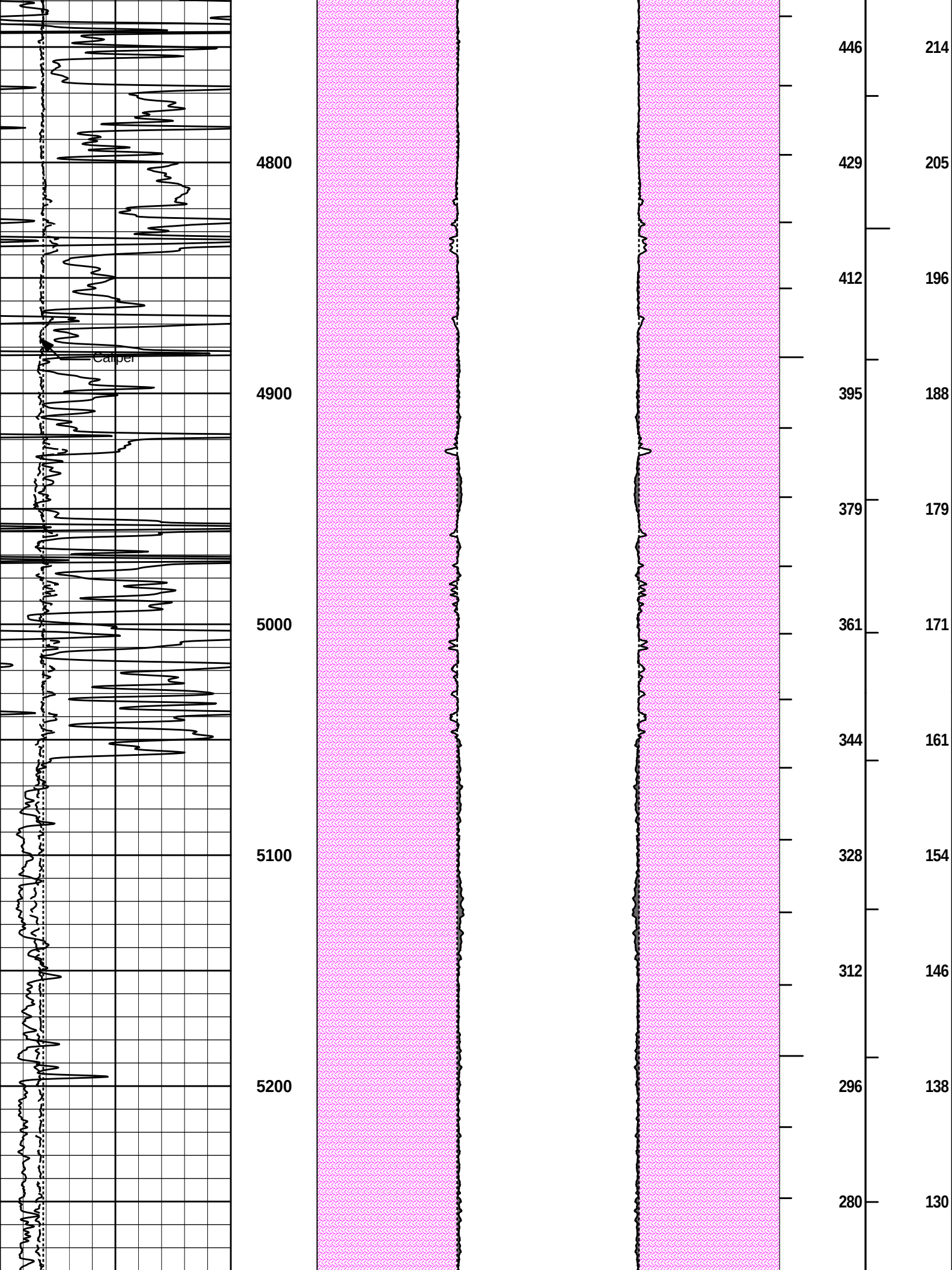
230
222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4900
5000
5100
5200
446
429
412
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361
344
328
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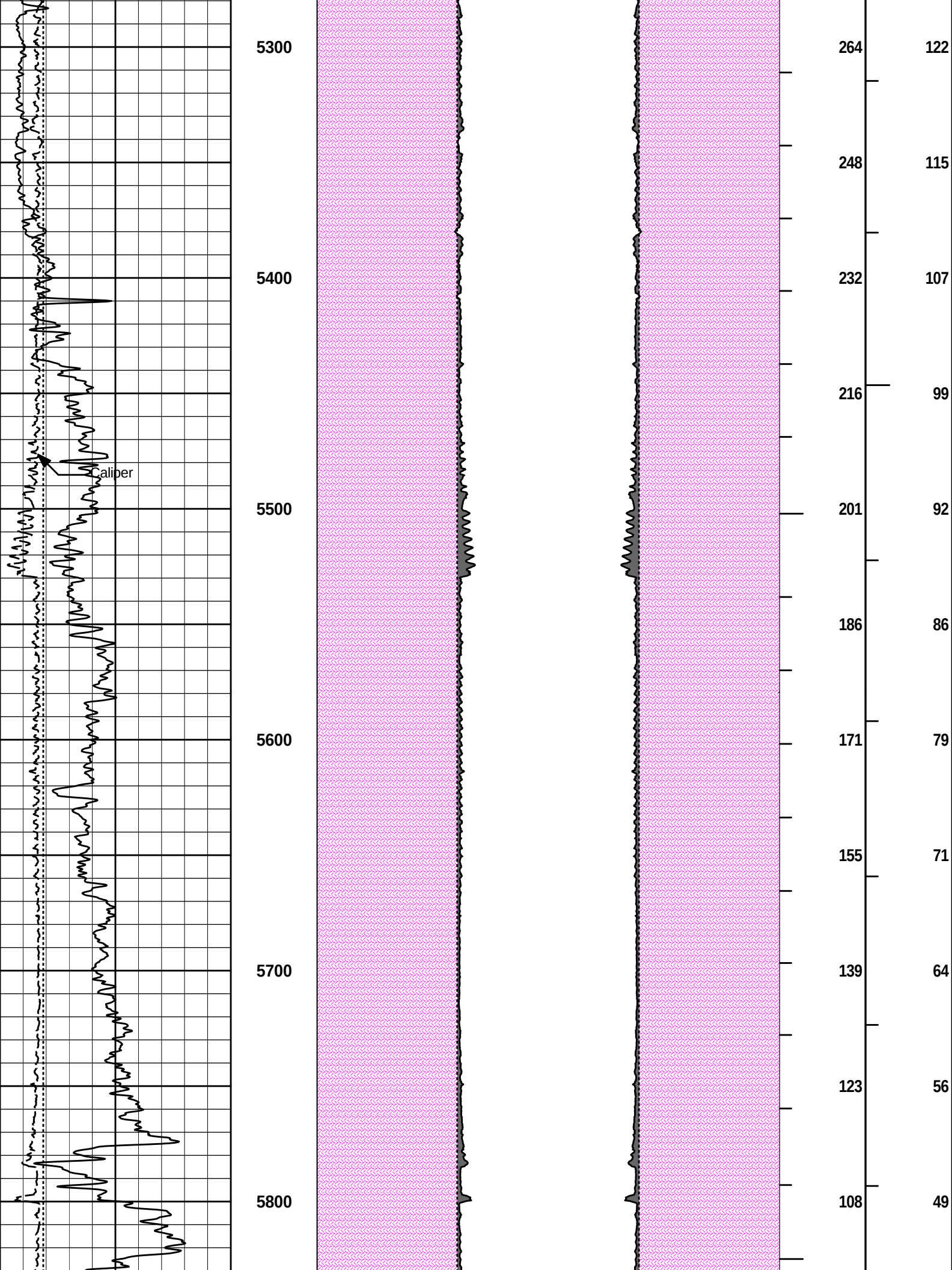
296
280
214
205
196
188
179
171
161
154
146
138
130


Caliber
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5500
5600
5700
5800
264
248
232
216
201
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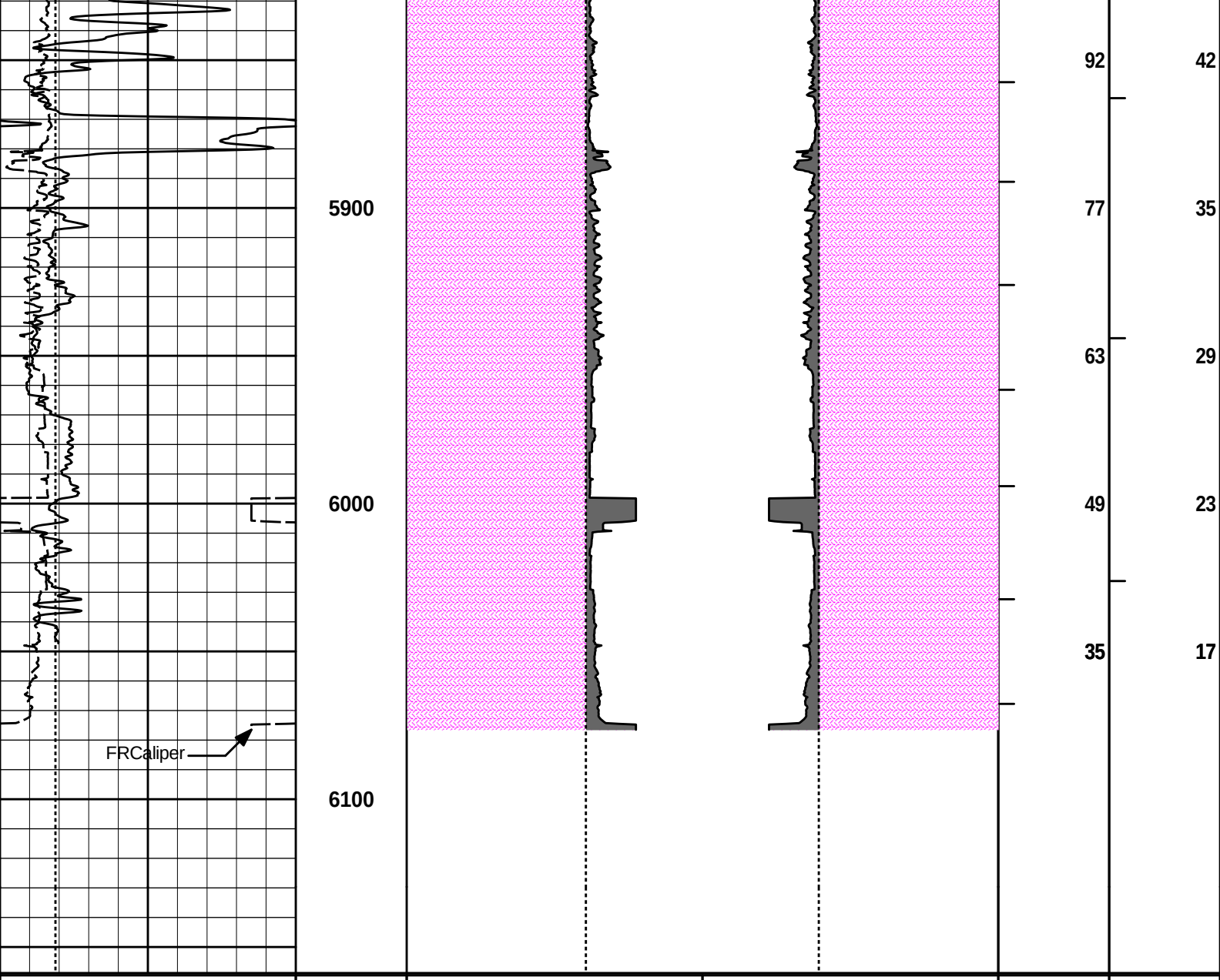
171
155
139
123
108
122
115
107
99
92
86
79
71
64
56
49



6 Caliper 16	MD 1 : 600 ft	20 Caliper 0		0 Caliper 20		BHVT	AHVT
inches		inches		inches			
6 Bit Size 16		20 Bit Size 0		0 Bit Size 20			
inches							
0 Gamma API 150		MUDCAKE		MUDCAKE			
api							

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Plot Time: 27-Feb-14 15:23:27
Plot Range: 770 ft to 6158.83 ft
Data: BIRD_3319_3-6\Well Based\CASING\
Plot File: \\-LOCAL-\BIRD_3319_3-6\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-BN\PORO\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

COMPANY	**SANDRIDGE ENERGY**		
WELL	**BIRD 3319**		
FIELD	**BIRD**		
COUNTY	**COMANCHE**	STATE	**KANSAS**

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
LOG